

CPC COOPERATIVE PATENT CLASSIFICATION**Y GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS***(NOTES omitted)***Y10 TECHNICAL SUBJECTS COVERED BY FORMER USPC****Y10T TECHNICAL SUBJECTS COVERED BY FORMER US CLASSIFICATION****NOTE**

This subclass has been introduced in January 2015 in view of the CPC to accommodate for technical subjects formerly covered by USPC

Former US Class 24 series

24/00	Buckles, buttons, clasps, etc.	24/1397	. . Article held by flexible connector [e.g., chain]
24/10	. Miscellaneous	24/14	. Bale and package ties, hose clamps
24/11	. Album fasteners	24/1402	. . Packet holders
24/12	. Gun band type	24/1404	. . . Cord
24/13	. Article holder attachable to apparel or body	24/1406	. . . Adjustable bands
24/1303	. . Chatelaine safety hooks	24/1408	. . . Closed loops
24/1306	. . Flower	24/141	. . . Plastic bands
24/1309	. . . Pin attached	24/1412	. . with tighteners
24/1312	. . Napkin	24/1414	. . . Wedge
24/1315	. . . Hook	24/1416	. . . Winder
24/1318	. . . Neck enclosing	24/1418	. . . Self-locking [dead center or snap action]
24/1321	. . Pencil	24/142	. . . . Adjustable girth
24/1324	. . . Clasp attached	24/1422	. . . . Rack bar
24/1326	. . . . Finger ear, belt attached pencil holder	24/1424	. . . . Lever
24/1329	. . . . Pencil holder with paper clip	24/1427	. . . . Worm and tooth
24/1332	. . . . Combined and convertible pencil holder	24/1429	. . . . Pivotal worm band clamp
24/1335	. . . . Container type pencil holder	24/1431	. . . . Radial worm band clamp
24/1338	. . . . Separate pencil holder and pocket engaging clip	24/1433	. . . Integral thread
24/1341	. . . . Sliding jaw pencil holding clip	24/1435	. . . . External thread
24/1344	. . . . Wire pencil holder	24/1437	. . . . . Both ends threaded
24/1347	. . . . Flexible shank pencil holder	24/1439	. . . Radial screw
24/135	. . . . with movable catch [e.g., pin pivoted lever, roller, etc.]	24/1441	. . . Tangential screw
24/1353	. . . . Pivoted jaw pencil holder	24/1443	. . . . Adjustable girth
24/1356	. . . Pin attached	24/1445	. . . . . Step adjustment
24/1359	. . . Rule holder	24/1447	. . . . . Plural separable parts
24/1362	. . Sleeve holder [e.g., for inner coat]	24/1449	. . . . . Wire
24/1365	. . Pin attached	24/1451	. . . . . Plural separable parts
24/1368	. . Arm or leg carried holder	24/1453	. . . . . Pivotal strap parts
24/1371	. . Eyeglass holder including retaining means	24/1455	. . . . . Plural wrap
24/1374	. . Neck supported holder	24/1457	. . Metal bands
24/1376	. . Holder contains pocket engager [e.g., antitheft device, wallet protector]	24/1459	. . . Separate connections
24/1379	. . Key ring holder	24/1461	. . . . One piece
24/1382	. . Receptacle type holder	24/1463	. . . . . Sheet metal
24/1385	. . . Eyeglass or spectacle case	24/1465	. . . . . Buckle band connection
24/1388	. . Open-ended holster type holder	24/1467	. . . . . Swedged sheet metal band connection
24/1391	. . Article held by clip with spring [e.g., leaf, coil] member	24/1469	. . . . . End-to-end integral with band connecting means
24/1394	. . Article held by clip	24/1471	. . . . . Pivoted parts
		24/1473	. . . . . Wedging parts
		24/1476	. . . . . Wire
		24/1478	. . . Circumferentially swagged band clamp
		24/148	. . . End-to-end integral band end connection

24/1482	. . . Ratchet and tool tightened band clamp	24/1938	. . . Pin attached
24/1484	. . . Spring closed band clamp	24/1941	. . Collar button combined
24/1486	. . . Screw locked band clamp	24/1945	. . . Clasp attached
24/1488	. . . Swedged to lock band ends	24/1948	. . . Pin attached
24/149	. . Wire	24/1952	. . . Separable fastener
24/1492	. . . Separate connections	24/1955	. . Tie, attached hook
24/1494	. . . . Wire	24/1959	. . Magnetic, adhesive, or snap type fastener connects tie to shirt
24/1496	. . Wooden bands	24/1962	. . Tie engaging loop with shirt engaging fastener
24/1498	. . Plastic band	24/1966	. . Tie knot engaging and collar attaching
24/15	. Bag fasteners	24/1969	. . Tie clip and shirt clasp attaching
24/152	. . Swedged bag tie	24/1972	. . Tie clip and fastening pin
24/153	. . Plastic band bag tie	24/1976	. . Tie pin with shirt fastener
24/155	. . Resilient slot bag tie	24/1979	. . Tie stiffener with shirt fastener
24/157	. . Twist-to-close bag tie	24/1983	. . with pivotal jaws having spring means
24/158	. . Slides to lock bag end within housing	24/1986	. . Slider
24/16	. Belt fasteners	24/199	. . Ornamental
24/1604	. . Tighteners	24/1993	. . . Key shaped
24/1608	. . Hinged	24/1997	. . Resilient clasp
24/1612	. . . Ring connected belt ends	24/20	. Paper fastener
24/1616	. . . Bent over flanged ends	24/201	. . with screw threaded or notch engaging securing means
24/162	. . . Pintle pin connected belt ends	24/202	. . Resiliently biased
24/1624	. . . V and round belts	24/203	. . . including means to open or close fastener
24/1628	. . . Overlapped belt ends	24/204	. . . . Pivotaly mounted on pintle
24/1632	. . . Sheet metal knuckles, common pintle	24/205	. . . One piece
24/1636	. . . Wire knuckles, common pintle	24/206	. . . . Mounted on support means
24/164	. . . Knuckle integral with belt material	24/207	. . Adhesive
24/1644	. . . Multiple pintles interconnected V-belt type	24/208	. . Corner fastened
24/1648	. . Lacing	24/209	. . Paper-penetrating
24/1652	. . One piece	24/21	. Strap tighteners
24/1656	. . . Deflecting prong	24/2102	. . Cam lever and loop
24/166	. . Screw clamp	24/2104	. . . Step adjusted
24/1664	. . Splices	24/2106	. . . . Ski boot and garment fasteners
24/1668	. . Wire	24/2108	. . . . Split ring tightener
24/1672	. . Butt connected belt ends	24/2109	. . . . Chain and rope tighteners
24/1676	. . V, round, trapezoidal belts	24/2111	. . . . Tire chain tighteners
24/168	. . Flanged belt ends, connector hold ends	24/2113	. . . . Strap tighteners
24/1684	. . Lapped ends of endless belts	24/2115	. . . . Jewelry
24/1688	. . Hinged ends of endless belts	24/2117	. . . Strap tighteners
24/1692	. . Wire strands reinforce belts	24/2119	. . . Tie chain tighteners
24/1696	. . Hook and loop type fastener and zipper belt end connection	24/2121	. . . Cargo tie down
24/17	. Buttoners	24/2123	. . . Cover fasteners
24/18	. Cuff holder	24/2125	. . . Chain tighteners
24/181	. . Adjustable	24/2126	. . . Strap tightener machine
24/183	. . Sleeve clasp and button for cuff	24/2128	. . . toggle actuated sliding jaw
24/184	. . Sleeve clasp and clasp for cuff	24/213	. . . Jewelry
24/185	. . Sleeve clasp and hook for cuff	24/2132	. . . Split ring with tightener
24/186	. . Sleeve clasp and pin for cuff	24/2134	. . . Concrete form panels
24/188	. . Sleeve pin and button for cuff	24/2136	. . . Seat belt buckles
24/189	. . Pin fastener	24/2138	. . . Chain, cable, wire tighteners, and anchors
24/19	. Necktie fastener	24/214	. . . Envelope fasteners
24/1903	. . Bands	24/2142	. . . Ski boot and garment fasteners
24/1907	. . . End-securing pin	24/2143	. . Strap-attached folding lever
24/191	. . . Gripping	24/2145	. . . toggle latch
24/1914	. . . Depressors	24/2147	. . . Strap tightener
24/1917	. . . . Button engaging	24/2149	. . . Tire antiskid strap tightener
24/1921	. . . . Pin or spur	24/2151	. . . Seat belts
24/1924	. . Button engaging	24/2153	. . . Split ring fasteners
24/1928	. . . Adjustable	24/2155	. . . Jewelry-watch straps
24/1931	. . . Cord loop	24/2157	. . . Tie downs [covers, articles]
24/1934	. . . Pivoted or sliding jaw		

24/2158	. . . Cable, wire, rope tightener	24/2541	. . . having either noninterlocking element in, interrupted, or unequal length series
24/216	. . . Ski boot and garment fasteners	24/2543	. . . with element structural feature unrelated to interlocking or securing portion
24/2162	. . . Dress hem raisers	24/2545	. . . Dissimilar opposed elements
24/2164	. . Midline	24/2546	. . . Wire element
24/2166	. . Jewelry	24/2548	. . . Preattached to mounting cord
24/2168	. . Seat belt	24/255	. . . having interlocking portion with specific shape
24/217	. . Accordion straps	24/2552	. . . . including symmetrical formations on opposite walls for engaging mating elements
24/2172	. . Parallel poles clamp	24/2554	. . . . including complementary formations on opposite walls for engaging mating elements
24/2174	. . form panels for walls	24/2555	. . . . . Mating elements having reversed orientation of formations
24/2175	. . Cargo tie down	24/2557	. . . having mounting portion with specific shape or structure
24/2177	. . Chain tighteners	24/2559	. . . . including embracing jaws
24/2179	. . Split band with tightener	24/2561	. . Slider having specific configuration, construction, adaptation, or material
24/2181	. . Tire chain tighteners	24/2563	. . . including relatively movable spaced wings [i.e., restraining walls]
24/2183	. . Ski, boot, and shoe fasteners	24/2564	. . . including converging channel and relatively movable separator island
24/2185	. . Fixed jaw with sliding or pivoted jaw	24/2566	. . . including position locking-means attached thereto
24/2187	. . Rack and pinion and circular tighteners	24/2568	. . . . Protrusion on pull tab directly engaging interlocking surfaces
24/2189	. . Circular flange container clamp	24/257	. . . . having surface engaging element shifted by reorientation of pull tab
24/2191	. . Strap stretching tools, tighteners, and sealers	24/2571	. . . . . Resilient or spring biased element
24/2192	. . Buckle type	24/2573	. . . . . Selectively shifted by either of two pull tabs
24/2194	. . Integral piece	24/2575	. . . . . with relatively movable link
24/2196	. . toggle	24/2577	. . . . . Biased by distinct spring
24/2198	. . Stocking top	24/2579	. . . . . having aperture cooperating with guide post
24/22	. Trouser guards, clips, straps [e.g., above shoetops]	24/258	. . . including means preventing bunching of structure-to-be-secured or stringer
24/23	. Bedclothes holders	24/2582	. . . having specific contour or arrangement of converging channel, separator island, or wing
24/24	. T-head nongripping, fabric engaging type	24/2584	. . . . Spaced segments of each wall of channel supported by different wings
24/25	. Zipper or required component thereof	24/2586	. . . including pull tab attaching means
24/2502	. . Plural zippers	24/2588	. . . including means for attaching components of slider together
24/2504	. . . Zipper chain	24/2589	. . . with ornamental slider
24/2505	. . . having surface sealing structure	24/2591	. . with means for concealing surfaces
24/2507	. . having slider or interconnected sliders with access opening for diverse-art member	24/2593	. . including complementary, aligning means attached to ends of interlocking surfaces
24/2509	. . Plural independently movable sliders	24/2595	. . . having specific mounting connection or reinforcing structure at connection
24/2511	. . with distinct, stationary means for anchoring slider	24/2596	. . including means attaching interlocking surfaces together
24/2513	. . . and for aligning surfaces or obstructing slider movement	24/2598	. . including means for obstructing movement of slider
24/2514	. . with distinct member for sealing surfaces	24/26	. Slit closing means including guides on opposite edges of slit and slidable bridging component
24/2516	. . with distinct separable-fastener	24/262	. . with hand-actuated lever for shifting bridging component
24/2518	. . having coiled or bent continuous wire interlocking surface	24/264	. . including structure linking and allowing variations in separation between opposite-guide-contacting portions of component
24/252	. . . with stringer tape interwoven or knitted therewith	24/266	. . having bridging components attached in series along carrying element
24/2521	. . . with stringer tape having specific weave or knit pattern		
24/2523	. . . with core encircled by coils or bends		
24/2525	. . . with mounting portion having structural formations complementary to stitching		
24/2527	. . . Attached by stitching		
24/2529	. . . . String or stringer tape having distinctive property [e.g., heat sensitive]		
24/253	. . . with stringer tape having distinctive property [e.g., heat sensitive]		
24/2532	. . having interlocking surface with continuous cross section		
24/2534	. . . Opposed interlocking surface having dissimilar cross section		
24/2536	. . having interlocking surface formed from single member with varying cross section		
24/2538	. . . Opposed surface having dissimilar cross section		
24/2539	. . Interlocking surface constructed from plural elements in series		

24/268	. . having separate, independently movable, bridging components	24/342	. . . . Buckle having plural receiving slots
24/27	. including readily dissociable fastener having numerous, protruding, unitary filaments randomly interlocking with, and simultaneously moving towards, mating structure [e.g., hook-loop type fastener]	24/3421	. . . including a button fastening element
24/2708	. . Combined with diverse fastener	24/3423	. . . and separable fastening means for attached fastener
24/2717	. . with distinct structure for sealing securement joint	24/3424	. . . . Snap fastener
24/2725	. . with feature facilitating, enhancing, or causing attachment of filament mounting surface to support therefor	24/3425	. . . having roller means
24/2733	. . having filaments formed from continuous element interwoven or knitted into distinct, mounting surface fabric	24/3427	. . Clasp
24/2742	. . having filaments of varied shape or size on same mounting surface	24/3428	. . . having pivoted members
24/275	. . with feature facilitating or causing attachment of filaments to mounting surface	24/3429	. . . . Cam type member
24/2758	. . . Thermal or adhesive	24/3431	. . . . Plural clasps
24/2767	. . having several, repeating, interlocking formations along length of filaments	24/3432	. . . . . and toggle operator
24/2775	. . having opposed structure formed from distinct filaments of diverse shape to those mating therewith	24/3433	. . . . . Spring biased
24/2783	. . having filaments constructed from coated, laminated, or composite material	24/3435	. . . . . . Coil
24/2792	. . having mounting surface and filaments constructed from common piece of material	24/3436	. . . . . and cam
24/28	. Freight container to freight container fastener	24/3437	. . . . . Coil spring biased
24/29	. Drum or can spacer fastener	24/3439	. . . Plural clasps
24/30	. Trim molding fastener	24/344	. . . . Resilient type clasp
24/301	. . having externally threaded attaching means	24/3441	. . . . . and cam
24/302	. . . and laterally extending biasing appendage	24/3443	. . . . . Spring biased jaw
24/303	. . having laterally extending biasing appendage	24/3444	. . . . . Circular work engageable
24/304	. . Resilient metal type	24/3445	. . . . . and pin attachment
24/306	. . . Strip formed	24/3447	. . . . . and disconnect means
24/307	. . . Sheet metal formed	24/3448	. . . including a button fastening element
24/308	. . . Wire formed	24/3449	. . . and hook
24/309	. . Plastic type	24/3451	. . . . having intermediate connector allowing movement
24/31	. Plural fasteners having intermediate flaccid connector	24/3452	. . . . . and adjustment means
24/312	. . Chain connector	24/3453	. . . . . having gripping configuration on clasp jaw
24/314	. . Elastic connector	24/3455	. . . . . Penetrating type
24/316	. . . Strap connector	24/3456	. . . . . having cam
24/318	. . Strap connector	24/3457	. . . . . having separable jaws
24/32	. having magnetic fastener	24/3459	. . . and penetrating prong
24/33	. having adhesive fastener	24/346	. . . and pin
24/34	. Combined diverse multipart fasteners	24/3461	. . . . having separate pin loss prevention means
24/3401	. . Buckle	24/3463	. . . . . Pin coextensive, coplanar, and contiguous with clasp jaw
24/3403	. . . and buckles	24/3464	. . . . . Pin coextensive, coplanar, and contiguous with clasp jaw
24/3404	. . . . having separate material adjustment means	24/3465	. . . . . Pin forms part of clasp jaw
24/3405	. . . . having separate disconnect means	24/3467	. . Pin
24/3407	. . . . . Pivotal lever type	24/3468	. . . and pin
24/3408	. . . . . having disconnect structure	24/3469	. . . . and disconnect means
24/3409	. . . . . Resilient cooperating means	24/3471	. . . . . Hook and eye type
24/3411	. . . . . and pin	24/3472	. . . . . and hook
24/3412	. . . . . Crossed belt accommodating	24/3473	. . . . . having connector allowing movement
24/3413	. . . and clasp	24/3475	. . . . . having intermediate connector allowing movement
24/3415	. . . and pin	24/3476	. . . and hook
24/3416	. . . and hook	24/3477	. . . . having intermediate connector allowing movement
24/3417	. . . . having disconnect means	24/3479	. . . . . and adjustment means
24/3419	. . . . having penetrating prong	24/348	. . . . . Hook having locking means
		24/3481	. . . including a button fastening element
		24/3483	. . . and penetrating prong
		24/3484	. . Hook
		24/3485	. . . and hook
		24/3487	. . . . having biasing spring
		24/3488	. . . . Separately connected
		24/3489	. . . . having securing means
		24/3491	. . . . . Sliding
		24/3492	. . . . . Snap type
		24/3493	. . . . . Pivoted

24/3495	. . . having penetrating prong	24/3716	. . . . with pivotal connection therebetween
24/3496	. . . including a button fastening element	24/3718	. . . . with integral resilient linking structure therebetween
24/3497	. . Button fastening element including another fastener element	24/3721	. . . . . formed from wire
24/3499	. . Penetrating prong	24/3724	. . . having lacing wound thereabout or wedged therein
24/35	. Interchangeable button loop and pin	24/3726	. . with holding means fixedly mounted on lacing
24/36	. Button with fastener	24/3729	. . . and forming lacing tips
24/3602	. . Loss-preventing devices	24/3732	. . Includes lacing holding structure within directing means therefor
24/3604	. . Adjustable	24/3734	. . having diverse shaped directing means for lacing
24/3606	. . Cloth shanks and covers	24/3737	. . having lacing directing means in particular pattern
24/3609	. . Multiple attachment	24/3739	. . Includes lacing guiding roller within directing means
24/3611	. . Deflecting prong or rivet	24/3742	. . having eyelet type directing means
24/3613	. . . Anvil or plate	24/3745	. . . with permanently deformed mounting structure
24/3615	. . . Integral	24/3747	. . . . Mounting structure formed from different material than directing passage
24/3617	. . Hinged leaf	24/375	. . having hook shaped directing means
24/3619	. . . Axially rotating	24/3753	. . . and movable component or surface for closing throat
24/3621	. . . Double	24/3755	. . . Mounted by structure allowing bodily movement thereof
24/3623	. . . Sliding	24/3758	. . . formed from wire
24/3626	. . Sliding bar	24/3761	. . . with mounting structure formed from different material
24/3628	. . Integral or rigid stud	24/3763	. . . with permanently deformed mounting structure
24/363	. . . Bent sheet metal [integral]	24/3766	. . . . Expanding stud
24/3632	. . Link	24/3768	. . having loop or sleeve shaped directing means
24/3634	. . . Integral rubber button, extendable shank	24/3771	. . . Entirely formed from flaccid material
24/3636	. . . Extendably connected	24/3774	. . . Mounted by structure allowing bodily movement thereof
24/3638	. . . Pivoted leaf	24/3776	. . . formed from wire
24/364	. . . Releasably locked	24/3779	. . . with permanently deformed mounting structure
24/3643	. . . French cuff	24/3782	. . . . Loop or sleeve closed when mounted
24/3645	. . . Tufting	24/3784	. . . . Expanding stud
24/3647	. . . Integral piece	24/3787	. . having elastic segment in lacing
24/3649	. . Pin attached	24/3789	. . having means covering tip of lacing
24/3651	. . Separable	24/3792	. . . Tasseled
24/3653	. . . Screw	24/3795	. . . with plural components
24/3655	. . . Spring	24/3797	. . . with permanently deformed mounting structure
24/3657	. . . . Resilient head	24/38	. Strap cable or pipe button
24/366	. . . . Resilient socket	24/39	. Cord and rope holders
24/3662	. . . . Rotating head	24/3902	. . Chain
24/3664	. . . . with operating devices	24/3904	. . . Bead chain fasteners
24/3666	. . Separate thread bar	24/3907	. . Sheathed strand
24/3668	. . Spiral fastener	24/3909	. . Plural-strand cord or rope
24/367	. . Covers	24/3911	. . Friction disk
24/3672	. . . Metal or plastic caps	24/3913	. . Knot engaging
24/3674	. . Pads	24/3916	. . One-piece
24/3677	. . Flexible button	24/3918	. . . Wedge slot
24/3679	. . Swivel button	24/392	. . . Wire
24/3681	. . Tufting type	24/3922	. . . . Cord runs through center of coil
24/3683	. . Button with cavity for friction grip fastener	24/3924	. . . Sheet material
24/3685	. . Button with shank for friction grip fastener	24/3927	. . . Slack adjuster
24/3687	. . Heat or adhesive secured type	24/3929	. . . Rubber
24/3689	. . Thread or wire through apertured button	24/3931	. . . Wire
24/3691	. . Eye shank type button	24/3933	. . . Swagged, deformable
24/3694	. . Ornamental type	24/3936	. . Pivoted part
24/3696	. . for cuff or collar	24/3938	. . . Lever tension
24/3698	. . Fabric embracing	24/394	. . . Cam lever
24/37	. Drawstring, laced-fastener, or separate essential cooperating device therefor		
24/3703	. . Includes separate device for holding drawn portion of lacing		
24/3705	. . . Device engages tie in lacing		
24/3708	. . . . and fully covers tie		
24/3711	. . . Device engages element or formation on lacing		
24/3713	. . . having relatively movable holding components or surfaces		

24/3942	. . . . Laterally shifted rope	24/4077	. . . . Looped strap
24/3944	. . . . Cam engaging or disengaging	24/4079	. . . Sliding part of wedge
24/3947	. . . . Fixed and movable jaws, movable jaw pulled	24/4081	. . . . Hook attached
24/3949	. . . . Link-connected parallel jaws	24/4084	. . . . Looped strap
24/3951	. . . . Dual cam	24/4086	. . . Looped strap
24/3953	. . . Pivotal means with plate aperture	24/4088	. . . One-piece
24/3956	. . . Jaws locked together by cam, wedge, lever, or screw	24/4091	. . . . Hook attached
24/3958	. . . Screw clamp	24/4093	. . . . Looped strap
24/396	. . . . Screw clamp with snubber	24/4095	. . . Fabric covered
24/3962	. . . . Tangential bolt	24/4098	. . . Ornamental and/or object supported
24/3964	. . . . J-shaped bolt	24/41	. . . Pierced earring fastener
24/3967	. . . . Bolt perpendicular to cable axis	24/42	. . . Independent, headed, aperture pass-through fastener
24/3969	. . . Sliding part or wedge	24/43	. . . Fastener with revolving component wrapping structure-to-be-secured about fastener
24/3971	. . . . Rope looped about movable member	24/44	. . . Clasp, clip, support-clamp, or required component thereof
24/3973	. . . . Rope clamped between cone and socket	24/44009	. . . Gripping member adapted for tool actuation or release
24/3976	. . . . Sliding ball	24/44017	. . . with specific mounting means for attaching to rigid or semirigid supporting structure or structure-to-be-secured
24/3978	. . . . Screw actuated	24/44026	. . . . for cooperating with aperture in supporting structure or structure-to-be-secured
24/398	. . . Bendable, ductible	24/44034	. . . Dissociable gripping members
24/3982	. . . Safety release	24/44043	. . . . Channel and inserted bar
24/3984	. . . Alignable aperture and spring pressed moving element	24/44051	. . . . having operator or locking means
24/3987	. . . Loop, adjustable	24/4406	. . . . Resilient channel or bar
24/3989	. . . Snubbers, cleats by dielectric loss	24/44068	. . . having gripping member actuated by fluid force
24/3991	. . . Loop engaging	24/44077	. . . having inserted and receiving interlocking members connected by bendable, nonbiasing strap
24/3993	. . . Ball or roller	24/44085	. . . . Discrete flaccid strap
24/3996	. . . Sliding wedge	24/44094	. . . . with distinct means for preventing separation of members
24/3998	. . . Helical preform	24/44103	. . . . . Slidably mounted
24/40	. . Buckles	24/44111	. . . . with separate flaccid flap or pocket for protecting structure-to-be-secured
24/4002	. . . Harness	24/4412	. . . . with separate, cavity-blocking gate on receiving member
24/4005	. . . . Combined buckles and snap hooks	24/44128	. . . . Resilient inserted or receiving member
24/4007	. . . . Lock	24/44137	. . . . . Inserted or receiving member substantially covered or coated for protection or to promote gripping
24/4009	. . . . . Key	24/44145	. . . . . Resilient inserted member
24/4012	. . . . Clamping	24/44154	. . . . . having engaging face formed from nonmetallic material
24/4014	. . . . . One-piece	24/44162	. . . . . having head and neck type engaging face
24/4016	. . . . . Pivoted part or lever	24/44171	. . . . . having internal supporting or reinforcing element
24/4019	. . . . . Sliding part or wedge	24/44179	. . . . . Circular head or neck
24/4021	. . . . Cross bails	24/44188	. . . . having wedge shaped, inserted and receiving members
24/4023	. . . . . Pivoted stud plate	24/44197	. . . . with specific means for attaching to flaccid strap or supporting strap
24/4026	. . . . . Rigid stud	24/44205	. . . . . On the inserted member
24/4028	. . . . Penetrating tongue	24/44214	. . . . having necked button sliding along length of closed, variable width loop
24/403	. . . . . Guarded	24/44222	. . . having flaccid gripping member
24/4033	. . . . . One-piece	24/44231	. . . formed from elastic material
24/4035	. . . . . Multiple	24/44239	. . . Encircling gripping member including semirigid band and operator for tightening
24/4037	. . . . . Pivoted		
24/404	. . . . . Lever actuated		
24/4042	. . . . . Stud		
24/4044	. . . . . Sliding part or wedge		
24/4047	. . . . Strap loops and attaching devices		
24/4049	. . . . Loop shields		
24/4051	. . . Garment shielded		
24/4053	. . . Combined pressure bar and guard		
24/4056	. . . . Hook attached		
24/4058	. . . Penetrating prong		
24/406	. . . . One-piece		
24/4063	. . . . . Hook attached		
24/4065	. . . . Pivoted		
24/4067	. . . . . Hook attached		
24/407	. . . . Slide		
24/4072	. . . Pivoted lever		
24/4074	. . . . Hook attached		

24/44248 . . .	Encircling gripping member including semirigid band and means for adjusting girth	24/44607 . . .	Track or way oblique to path of gripping member
24/44256 . . .	with specifically shaped, nongripping, rigid structure for connecting independently operable clasps, clips, or support-clamps	24/44615 . . .	with position locking-means for gripping members
24/44265 . . .	Gripping member face integral with or rigidly affixed to screw-driving portion	24/44624	Integral locking-means
24/44274 . . .	having either discrete flaccid or thin, nonbiasing, integral, connecting hinge	24/44632 . . .	with specific mounting means for attaching to flaccid supporting structure or structure-to-be-secured
24/44282 . . .	having equally spaced or continual gripping faces revolving about central axis	24/44641 . . .	having gripping member formed from, biased by, or mounted on resilient member
24/44291 . . .	including pivoted gripping member	24/4465 . . .	Integrally combined, independently operable, diverse clasps, clips, or support-clamps
24/44299	Pivoted member also slides	24/44658 . . .	with specific means for mounting to flaccid supporting structure or structure-to-be-secured
24/44308	Tapered face	24/44667	Mounting means made entirely from integral wire portion of resilient gripping member
24/44316 . . .	Pivoting gripping member either supports or coacts with sliding engaging face	24/44675	Wire coiled about flaccid supporting structure
24/44325 . . .	having three or more pivotally connected gripping members	24/44684 . . .	with operator for moving biased engaging face
24/44333 . . .	having toggle operator for moving	24/44692	Camming or wedging element
24/44342 . . .	having rigid linking arm pivotally connected to each gripping member	24/44701	Encircling sleeve type element
24/4435	with extended lever portion	24/44709	Pivoted or rotated element
24/44359	having lever end modified for attachment to support	24/44718	Element pivots or rotates in plane parallel to plane bisecting opposed engaging faces
24/44368 . . .	Pivoted gripping member applies camming force	24/44726	Elongated element with pivot between cam and handle portions
24/44376 . . .	Spring or resiliently biased about pivot	24/44735	for moving engaging face of U-shaped gripping member
24/44385	Distinct spring	24/44744 . . .	with position locking-means for engaging faces
24/44393	Attached solely by spring	24/44752	Integral locking-means
24/44402	with operator for moving pivoted member	24/44761	Pivoted lock member
24/4441	Camming or wedging element	24/44769 . . .	Opposed engaging faces on gripping member formed from single piece of resilient material
24/44419	Pivoted or rotated element	24/44778	Piece totally forms clasp, clip, or support-clamp and has shaped, wirelike, or bandlike configuration with uniform cross section throughout its length
24/44427	with position locking-means for gripping members	24/44786	Opposed faces located in and bias towards common plane in nonuse position
24/44436	including pivoted arm	24/44795	Resilient gripping member having tightly twisted portion
24/44444	having specific surface material or irregularity on or along engaging face	24/44803	Resilient gripping member having coiled portion
24/44453	having specific handle structure	24/44812	Convolutions of coil form faces
24/44462	Coil spring	24/44821	Relatively movable segments of resilient gripping member contact and cross in nonuse position
24/4447	having coil portion coaxial or parallel with pivotal axis	24/44829	Segments form opposed engaging faces
24/44479	Flat or leaf spring	24/44838	having specific handle structure
24/44487 . . .	Closed by gravity or weight of structure-to-be-secured	24/44846	having specific handle structure
24/44496 . . .	with operator means for moving pivoted member	24/44855	Terminal end of resilient member having engagement or disengagement enhancing structural modifications
24/44504	Threaded cylindrical rod and mating cavity	24/44863	having specific surface irregularity on or along engaging face
24/44513	Camming or wedging element	24/44872	having specific handle structure
24/44521	Pivoted or rotated element	24/4488	Movably attached to gripping member
24/4453	with position locking-means for gripping members	24/44889	Interlocking faces
24/44538	Integral locking-means	24/44897	with reinforcing member
24/44547 . . .	having inserted and receiving interlocking engaging faces	24/44906	having specific surface irregularity on or along engaging face
24/44556	Resilient gripping member	24/44915	Corrugated or toothed face
24/44564 . . .	having specific surface material or irregularity on or along engaging face		
24/44573 . . .	including track or way guided and retained gripping member		
24/44581 . . .	Biased by distinct spring		
24/4459 . . .	with operator for moving guided member		
24/44598	Threaded cylindrical rod and mating cavity		

- 24/44923 Clasp, clip, or support-clamp cut or shaped from a single sheet of resilient, uniformly thick, planar material
- 24/44932 . . . having specific surface material or irregularity on or along engaging face
- 24/4494 . . . having specific handle structure
- 24/44949 . . . including resilient biasing wire
- 24/44957 Coiled wire
- 24/44966 . . having gripping member shifted by operator
- 24/44974 . . . Threaded cylindrical rod and mating cavity
- 24/44983 . . formed from single rigid piece of material
- 24/44991 . . . having specific surface irregularity on or along engaging face
- 24/45 . . Separable-fastener or required component thereof [e.g., projection and cavity to complete interlock]
- 24/45005 . . with third detached member completing interlock [e.g., hook type]
- 24/4501 . . . Quick connect or release [e.g., spring and detent]
- 24/45016 . . . for jewelry
- 24/45021 . . . including eyelet [e.g., shoes]
- 24/45026 . . . for key holder
- 24/45031 . . . for tire chain, strap, etc. [e.g., rotatable or sliding spring gate]
- 24/45037 . . . for apparel and related accessories
- 24/45042 Button, button related
- 24/45047 Snap [e.g., key hole type]
- 24/45052 Post and receiver [e.g., pin and slot]
- 24/45058 Hook [e.g., within cavity]
- 24/45063 Belt, strap, etc. [e.g., buckle or snap fastener]
- 24/45068 Glove
- 24/45073 Purse, wallet, etc.
- 24/45079 Belt, strap, harness, etc.
- 24/45084 for safety belt buckle, strap, harness, etc.
- 24/45089 . . . Sliding or rotating element
- 24/45094 Element having key slot
- 24/45099 . . . Resilient element [e.g., snap type]
- 24/45105 for upholstery, panel, trim strip, etc. [e.g., spring biased]
- 24/4511 Link with pivoted gate
- 24/45115 . . . Hook
- 24/4512 Snap with spring bias [e.g., gate]
- 24/45126 for connecting chains [e.g., opposed pivoted hook]
- 24/45131 for heavy load bearing device [e.g., chain, rope, cable, etc.]
- 24/45136 Haim, harness, whiffletree, rein, etc.
- 24/45141 . . . for chain, rope, cable, etc.
- 24/45147 Coupler with sliding socket to complete interlock
- 24/45152 . . Each mating member having similarly shaped, sized, and operated interlocking or intermeshable face
- 24/45157 . . . Zipper-type [e.g., slider]
- 24/45162 for garment [e.g., with ribs and grooves interlocking elements]
- 24/45168 for container [e.g., bag]
- 24/45173 . . . Resilient element
- 24/45178 Snap [e.g., identical elements]
- 24/45183 . . . Clasp [e.g., spring type]
- 24/45188 for jewelry [e.g., buckle type]
- 24/45194 for belt or strap
- 24/45199 . . . Hook
- 24/45204 for belt, strap, etc. [e.g., with pivoted gate locking member]
- 24/45209 for apparel
- 24/45215 . . . Slot and tab or tongue
- 24/4522 . . . Sliding or rotating element
- 24/45225 . . including member having distinct formations and mating member selectively interlocking therewith
- 24/4523 . . . Hook
- 24/45236 Multiple catch [e.g., with pivoted gate]
- 24/45241 . . . Slot and tab or tongue
- 24/45246 having teeth or serrations [e.g., sliding with respect to each other]
- 24/45251 . . . Resilient element [e.g., with spring]
- 24/45257 Snap with cavity
- 24/45262 . . . Pin, post and receiver
- 24/45267 . . . Notched clasp [e.g., with receiving slot]
- 24/45272 . . . Projection passes through cavity then moves toward noninserted portion of its member to complete interlock [e.g., snap hook]
- (Frozen)
- WARNING**
- Groups [Y10T 24/45272](#) - [Y10T 24/45455](#) are no longer used for the classification of documents as of May 1, 2021.
- The content of this group is being reclassified into groups [F16B 45/00](#), [F16B 45/002](#), [F16B 45/005](#), [F16B 45/008](#), [F16B 45/012](#), [F16B 45/015](#), [F16B 45/02](#), [F16B 45/021](#), [F16B 45/022](#), [F16B 45/023](#), [F16B 45/024](#), [F16B 45/026](#), [F16B 45/027](#), [F16B 45/028](#), [F16B 45/029](#), [F16B 45/031](#), [F16B 45/032](#), [F16B 45/033](#), [F16B 45/034](#), [F16B 45/035](#), [F16B 45/036](#), [F16B 45/037](#), [F16B 45/04](#), [F16B 45/043](#), [F16B 45/045](#), [F16B 45/047](#), [F16B 45/049](#), [F16B 45/051](#), [F16B 45/053](#), [F16B 45/055](#), [F16B 45/057](#), [F16B 45/059](#) and [F16B 45/06](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 24/45277 Entire projection member forms loop or ring when interlocked
- (Frozen)
- 24/45283 Includes slidable gate closing entrance throat
- (Frozen)
- 24/45288 Hook type projection member
- (Frozen)
- 24/45293 Plural hooks entering opposite sides of same cavity
- (Frozen)
- 24/45298 Hooks formed solely from wire
- (Frozen)
- 24/45304 Noninserted portion of projection member includes movably connected gate for closing access throat
- (Frozen)
- 24/45309 Threaded gate
- (Frozen)
- 24/45314 Revolvably mounted disc shaped gate
- (Frozen)
- 24/45319 Pivotaly connected gate
- (Frozen)
- 24/45325 Gate swings transversely to plane of hook
- (Frozen)
- 24/4533 Gate also slides relative to pivot
- (Frozen)

24/45335 having means biasing gate about pivot (Frozen)	24/45508 and spring or resilient extension biasing about pivot
24/4534 and position locking-means for gate (Frozen)	24/45513 including slidably guided connection between nonself-biasing projection components
24/45346 Includes distinct biasing spring (Frozen)	24/45518 and distinct spring biasing component
24/45351 Coil type spring (Frozen)	24/45524 including resiliently biased projection component or surface segment
24/45356 Coiled about pivotal axis of gate (Frozen)	24/45529 Requiring manual force applied against bias to interlock or disengage
24/45361 having position locking-means for gate (Frozen)	24/45534 having connected leading edge and separated trailing arms
24/45366 Locking-means pivotally connected (Frozen)	24/45539 Cooperating with cavity having side walls and axially biased component capping end
24/45372 Locking-means slidably mounted (Frozen)	24/45545 forming total external surface of projection
24/45377 Gate closes when structure-to-be- secured is tensioned (Frozen)	24/4555 and encircling hollow central area
24/45382 Track or way guided gate (Frozen)	24/45555 having separate mounting means inserted into area
24/45387 having means biasing gate (Frozen)	24/4556 Plastic deformation of means or surface required for mounting
24/45393 Guide of gate encircles shank (Frozen)	24/45565 having separate mounting means encompassing cross section of projection
24/45398 Cavity in shank forms track or way (Frozen)	24/45571 having dome-shaped head and expansion slit along side
24/45403 with position locking-means for gate (Frozen)	24/45576 and connected surface at tip of head
24/45408 Resilient, self-biased gate (Frozen)	24/45581 having inserted end formed by oppositely biased surface segments
24/45414 with position locking-means for gate (Frozen)	24/45586 Constructed from wire
24/45419 Gate and hook formed from plastic (Frozen)	24/45592 having both resiliently biased and rigid components forming external surface of projection
24/45424 Gate and hook formed solely from wire (Frozen)	24/45597 Projection member including noninserted spring for engaging and pushing against receiving member
24/45429 Gate and hook formed from single piece of sheet metal (Frozen)	24/45602 Receiving member includes either movable connection between interlocking components or variable configuration cavity
24/45435 Projection pivotally attached to shank or mounting structure (Frozen)	24/45607 with additional cavity for engaging different projection
24/4544 Projection slidably mounted to shank or mounting structure (Frozen)	24/45613 having common means actuating or releasing interlocking components or surfaces
24/45445 Projection self-biased towards shank or mounting structure (Frozen)	24/45618 and interlocking with independently associated or dissociated projection members
24/4545 and formed solely from wire (Frozen)	24/45623 and operator therefor
24/45455 Cooperating with relatively stationary wire gate (Frozen)	24/45628 for plural, oppositely shifting, similar interlocking components or segments
24/45461 Interlocking portion actuated or released responsive to preselected condition [e.g., heat, pressure]	24/45634 Operator includes camming or wedging element
24/45466 having electric or fluid powered, actuation or release, of interlock	24/45639 including pivotally connected element on receiving member
24/45471 Projection having movable connection between components thereof or variable configuration	24/45644 for shifting pivotally connected interlocking component
24/45476 with additional, similar projection for engaging different cavity	24/45649 Element and component pivot about same axis
24/45482 and operator therefor	24/45654 for shifting slidably connected and guided, nonself-biasing interlocking component
24/45487 including camming or wedging element on projection member	24/4566 including slidably connected and guided element on receiving member
24/45492 Pivotally attached element	24/45665 for shifting pivotally connected interlocking component
24/45497 including pivotal connection between projection components	
24/45503 Component slides relative to connection	

24/4567	for shifting slidably connected and guided, nonself-biasing, interlocking component	24/45848	having distinct sections engaging projection at spaced points
24/45675	having pivotally connected interlocking component	24/45853	including separate, nonprojection-engaging spring for biasing
24/45681	Blocking removal of formation on projection from complementary formation on side wall of cavity	24/45859	Biased component or segment entirely formed from wire
24/45686	and position locking-means therefor	24/45864	having portion of cavity deformed during mounting
24/45691	and relatively movable handle therefor	24/45869	and cooperating with separate mounting component
24/45696	Requiring manual force thereon to interlock or disengage	24/45874	having axially extending expansion slit along side of cavity
24/45702	Plural, oppositely shifting, similar interlocking components	24/4588	Means for mounting projection or cavity portion
24/45707	having aperture therein alignable with parallel access opening	24/45885	Allows bodily movement facilitating interlock
24/45712	having interlocking portion thereof housed continuously within cavity	24/4589	About pivotal connection
24/45717	having cavity with side walls and axially biased component capping end	24/45895	Includes resilient component separate from portion
24/45723	having slidably connected, nonself-biasing interlocking component	24/45901	Allows relocation of portion
24/45728	Blocking removal of formation on projection from complementary formation on side wall of cavity	24/45906	having component of means permanently deformed during mounting operation
24/45733	and position locking-means therefor	24/45911	and formed from or fixedly attached to projection or cavity portion
24/45738	and relatively movable handle therefor	24/45916	Cooperates with detached component of means
24/45743	Requiring manual force thereon to interlock or disengage	24/45921	having shape facilitating impaling of mounting surface
24/45749	Plural, oppositely shifting, similar interlocking components	24/45927	and inserted into or through cavity or projection
24/45754	having closed aperture therethrough alignable with parallel access opening	24/45932	and encircling cavity or projection
24/45759	having flaccid component defining access opening of cavity	24/45937	Consisting of thermally fusible substance
24/45764	Component formed solely by flaccid cord	24/45942	having threaded formation
24/4577	with nonflaccid component	24/45948	having specific structure for cooperating with stitching
24/45775	having resiliently biased interlocking component or segment	24/45953	having shape facilitating impaling of mounting surface
24/4578	Cavity or projection rotates about axis of cavity to dissociate	24/45958	Plural distinct cavities or projections
24/45785	Requiring manual force applied against bias to interlock or disengage	24/45963	Hook type
24/45791	and partially blocking separate, nonresilient access opening of cavity	24/45969	Hook-shaped projection member passing through cavity
24/45796	and closed elongated access opening for guiding transverse projection travel after insertion	24/45974	formed from single piece of sheet metal
24/45801	Nonresilient walls define opening	24/45979	formed solely from wire
24/45806	formed from wire	24/45984	Cavity having specific shape
24/45812	and access opening with gapped perimeter for allowing movement of noninserted projection support therepast	24/4599	including closed elongated access opening for guiding transverse projection travel after insertion
24/45817	Cavity constructed solely from wire	24/45995	having access opening with gapped perimeter for allowing movement of noninserted projection support therepast
24/45822	Partially blocking separate, nonresilient, access opening of cavity	24/46	Pin or separate essential cooperating device therefor
24/45827	and bodily shifted into or out of interlock location by manual force thereon	24/4602	with separately operable, manually releasable, nonpenetrating means for mounting [e.g., drapery hook]
24/45832	formed from wire	24/4604	having distinct guiding, holding, or protecting means for penetrated portion
24/45838	having curved or bent engaging section conforming to contour of projection	24/4605	Means detachable from or flaccidly connected to pin [e.g., hatpin type]
24/45843	Similar, distinct sections	24/4607	for pin having plural penetrating portions
		24/4609	including relatively movable guiding, holding, or protecting components or surfaces
		24/4611	having operator for moving holding component or surface

- 24/4613 Moves pivoting holding component
- 24/4614 Moves slidably guided, nonself-biasing, holding component
- 24/4616 having pierceable [e.g., cork] or naturally resilient [e.g., rubber] surfaces
- 24/4618 with pivotal connection therebetween
- 24/462 with slidable connection between nonself-biasing components
- 24/4621 having resiliently biased component or surface
- 24/4623 Coiled about longitudinal axis of held portion
- 24/4625 and aperture therein alignable with another spaced aperture of means
- 24/4627 and nonresilient structure for guiding portion thereto
- 24/4629 including structure for cooperating with formation [e.g., cavity] formed on penetrating portion
- 24/463 for pin having plural penetrating portions
- 24/4632 Each independently movable towards and into cooperation with means
- 24/4634 including relatively movable guiding, holding, or protecting components or surfaces
- 24/4636 with connection allowing component to revolve about axis of held penetrating portion
- 24/4638 with pivotal connection therebetween
- 24/4639 having position locking means therefor
- 24/4641 Spring or resiliently biased
- 24/4643 with slidable connection between nonself-biasing components
- 24/4645 Component slides parallel to axis of held penetrating portion
- 24/4646 Means engages formation formed on penetrating portion
- 24/4648 having nonresilient and resilient components
- 24/465 Means formed from single resilient wire
- 24/4652 Means formed from resilient sheet metal
- 24/4654 with independent, spaced, intermediate connections, or formations [e.g., coils], about which portion or means move
- 24/4655 Includes slidable connection
- 24/4657 with pivotal connection between penetrating portion and means
- 24/4659 Connection also permits sliding movement
- 24/4661 Resiliently biased about connection
- 24/4663 with slidable connection intermediate penetrating portion and means
- 24/4664 having resilient bridging structure between portion and means
- 24/4666 Means includes structure for cooperating with formation [e.g., cavity] formed on portion
- 24/4668 and penetrating portion formed from wire
- 24/467 Bridging structure includes elongated nonwire element
- 24/4671 Wire also forms coiled bridging structure about which portion moves
- 24/4673 including distinct device for cooperating with coil
- 24/4675 having means also formed from same wire
- 24/4677 with cavity for guiding structure-to-be-secured towards penetrating portion [e.g., stocking support]
- 24/4679 having penetrating portion retractable or of changeable length
- 24/468 having interconnected distinct penetrating portions
- 24/4682 Connection allows movement therebetween
- 24/4684 Slidable connection
- 24/4686 Resilient connection
- 24/4688 formed from common wire
- 24/4689 and pointing in same direction
- 24/4691 Penetrating portion includes relatively movable structure for resisting extraction
- 24/4693 having specific wire penetrating portion
- 24/4695 Wire curved or bent
- 24/4696 having distinct head structure
- 24/4698 Movably connected to penetrating portion
- 24/47 Strap-end-attaching devices
- 24/4709 Bendable sheet material
- 24/4718 Watch pintle connected
- 24/4727 Webbing to tube [lawn chair]
- 24/4736 Buckle connected
- 24/4745 End clasp
- 24/4755 Hook
- 24/4764 Ring-loop
- WARNING**
- Group [Y10T 24/4764](#) is impacted by reclassification into groups [F16B 45/00](#), [F16B 45/002](#), [F16B 45/005](#), [F16B 45/008](#), [F16B 45/012](#), [F16B 45/015](#), [F16B 45/02](#), [F16B 45/021](#), [F16B 45/022](#), [F16B 45/023](#), [F16B 45/024](#), [F16B 45/026](#), [F16B 45/027](#), [F16B 45/028](#), [F16B 45/029](#), [F16B 45/031](#), [F16B 45/032](#), [F16B 45/033](#), [F16B 45/034](#), [F16B 45/035](#), [F16B 45/036](#), [F16B 45/037](#), [F16B 45/04](#), [F16B 45/043](#), [F16B 45/045](#), [F16B 45/047](#), [F16B 45/049](#), [F16B 45/051](#), [F16B 45/053](#), [F16B 45/055](#), [F16B 45/057](#), [F16B 45/059](#) and [F16B 45/06](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 24/4773 Cargo tiedown
- 24/4782 Watch strap
- 24/4791 Enlarged end epoxy
- 24/48 Pivoted edge stays
- 24/49 Fastener destructively secured by reshaping distortion force [e.g., ductile fastener]
- 24/492 Distorted structure having shape facilitating impaling
- 24/493 and distinct fastener structure cooperating with impaled structure
- 24/495 Detached cooperating structure
- 24/497 including plural impaling elements
- 24/498 Elements form single aperture [e.g., split shank type]
- 24/50 Readily interlocking, two-part fastener requiring either destructive or tool disengagement
- 24/505 including additional fastener structure linking parts

- 24/51 . Hanger on portable article support for manual attachment thereof to overhead support [e.g., drapery hook]

Former US Class 29 Series**29/00 Metal working**

- 29/10 . Battery-grid making
- 29/11 . Bias [i.e., helically] cutting of tubular stock
- 29/1106 . . including orbital cutter
- 29/1113 . . . within stock support
- 29/1119 . . . with orbiting strip accumulator
- 29/1125 . . including means to inflate stock
- 29/1131 . . with means to feed stock along support or mandrel
- 29/1138 . . . Single means produces compound motion
- 29/1144 Endless belt drive means
- 29/115 . . . Axially
- 29/1156 . . . Rotatably
- 29/1163 . . with means to rotate and store stock supply
- 29/1169 . . . Axis of rotation parallel to support or mandrel
- 29/1175 . . with means for arcuate shift of mandrel
- 29/1181 . . including means to handle produced strip or web
- 29/1188 . . . with common adjustment for cutter
- 29/1194 . . Method
- 29/12 . Buckle making
- 29/13 . Button-fastener making
- 29/14 . Shredding metal or metal wool article making
- 29/142 . . Metal wool making
- 29/143 . . . Shaving or longitudinal cutting
- 29/145 Soap-pad making
- 29/147 . . Metal wool bundling
- 29/148 . . . Soap-pad making
- 29/15 . Cord heddle making
- 29/16 . Cotter-pin making
- 29/17 . Crankshaft making apparatus
- 29/18 . Expanded metal making
- 29/185 . . by use of reciprocating perforator
- 29/19 . Eyebolt or hook making
- 29/20 . Fence barb making
- 29/203 . . by use of reciprocating cutter or die
- 29/207 . . by use of rotary cutter or die
- 29/21 . Finger-ring forming or sizing
- 29/22 . Fishhook making
- 29/23 . Gem and jewel setting
- 29/24 . Hinge making or assembling
- 29/25 . Lacing-stud making
- 29/26 . Paper-fastener making
- 29/27 . Plow or cultivator iron making
- 29/28 . Puddlers balls making
- 29/29 . Railway-chair making
- 29/30 . Foil or other thin sheet-metal making or treating
- 29/301 . . Method
- 29/302 . . . Clad or other composite foil or thin metal making
- 29/303 . . . with assembling or disassembling of a pack
- 29/304 Using transitory solid cover material
- 29/305 including bond prevention treatment
- 29/306 Disassembling of a pack
- 29/307 . . . by shaving or longitudinal cutting
- 29/308 . . . Using transitory material
- 29/309 . . Means for opening or separating a pack
- 29/31 . Spectacle-frame making
- 29/32 . Spiral cutting of flat stock
- 29/33 . Stereotype-plate finishing
- 29/34 . Means for forming clench-tongue [eg, for tieband]
- 29/35 . Tire upsetting, with cutting, punching, etc.
- 29/36 . toothed-cylinder making apparatus [e.g., texture working cylinder]
- 29/37 . Impeller making apparatus
- 29/38 . Type finishing and grooving
- 29/39 . Venetian blind assembling
- 29/40 . Umbrella-frame making
- 29/42 . Piezoelectric device making
- 29/43 . Electric condenser making
- 29/435 . . Solid dielectric type
- 29/44 . Filing
- 29/442 . . of key article
- 29/444 . . Continuous band type
- 29/446 . . Reciprocating type
- 29/448 . . File-blank stripper
- 29/45 . Scale remover or preventor
- 29/4506 . . for hollow workpiece
- 29/4511 . . . Interior surface
- 29/4517 . . Rolling deformation or deflection
- 29/4522 . . . for wire or rod
- 29/4528 . . with rotary head
- 29/4533 . . Fluid impingement
- 29/4539 . . . with heater
- 29/4544 . . . Liquid jet
- 29/455 . . . Airblast
- 29/4556 . . Chainer
- 29/4561 . . Scraper or scalper
- 29/4567 . . Brush type
- 29/4572 . . Mechanically powered operator
- 29/4578 . . . Tack or needle type
- 29/4583 . . . Hammer
- 29/4589 . . . Blade or chisel
- 29/4594 . . Hand tool
- 29/46 . Burning in, wearing in, or oil burnishing
- 29/47 . Burnishing
- 29/471 . . of water laid fibrous article [e.g., paper]
- 29/473 . . . Heated burnishing member
- 29/474 Burnishing tool reciprocates across work surface
- 29/476 . . Continuous feed
- 29/477 . . of gear article
- 29/479 . . by shot peening or blasting
- 29/48 . Upholstered article making
- 29/481 . . Method
- 29/482 . . Tufting
- 29/483 . . . with means to clench fastener
- 29/484 . . . with means to insert guide pin or fastener
- 29/486 . . Cover stretching
- 29/487 . . Edge-roll forming
- 29/488 . . form or holder
- 29/489 . . . with follower
- 29/49 . Method of mechanical manufacture
- 29/49002 . . Electrical device making
- 29/49004 . . . including measuring or testing of device or component part
- 29/49005 . . . Acoustic transducer
- 29/49007 . . . Indicating transducer

29/49009	Dynamolectric machine	29/49101	Applying terminal
29/49011	Commutator or slip ring assembly	29/49103	Strain gauge making
29/49012	Rotor	29/49105	Switch making
29/49014	Superconductor	29/49107	Fuse making
29/49016	Antenna or wave energy "plumbing" making	29/49108	Electric battery cell making
29/49018	with other electrical component	29/49111	including sealing
29/4902	Electromagnet, transformer or inductor	29/49112	including laminating of indefinite length material
29/49021	Magnetic recording reproducing transducer [e.g., tape head, core, etc.]	29/49114	including adhesively bonding
29/49023	including disassembly step	29/49115	including coating or impregnating
29/49025	Making disc drive	29/49117	Conductor or circuit manufacturing
29/49027	Mounting preformed head/core onto other structure	29/49119	Brush
29/49028	Mounting multitrack head	29/49121	Beam lead frame or beam lead device
29/4903	with bonding	29/49123	Co-axial cable
29/49032	Fabricating head structure or component thereof	29/49124	On flat or curved insulated base, e.g., printed circuit, etc.
29/49034	Treating to affect magnetic properties	29/49126	Assembling bases
29/49036	including measuring or testing	29/49128	Assembling formed circuit to base
29/49037	Using reference point/surface to facilitate measuring	29/4913	Assembling to base an electrical component, e.g., capacitor, etc.
29/49039	with dual gap materials	29/49131	by utilizing optical sighting device
29/49041	with significant slider/housing shaping or treating	29/49133	with component orienting
29/49043	Depositing magnetic layer or coating	29/49135	and shaping, e.g., cutting or bending, etc.
29/49044	Plural magnetic deposition layers	29/49137	Different components
29/49046	with etching or machining of magnetic material	29/49139	by inserting component lead or terminal into base aperture
29/49048	Machining magnetic material [e.g., grinding, etching, polishing]	29/4914	with deforming of lead or terminal
29/4905	Employing workholding means	29/49142	including metal fusion
29/49052	by etching	29/49144	by metal fusion
29/49053	Multitrack heads having integral holding means	29/49146	with encapsulating, e.g., potting, etc.
29/49055	with bond/laminating preformed parts, at least two magnetic	29/49147	Assembling terminal to base
29/49057	Using glass bonding material	29/49149	by metal fusion bonding
29/49059	with work positioning means	29/49151	by deforming or shaping
29/4906	Providing winding	29/49153	with shaping or forcing terminal into base aperture
29/49062	Multilayered winding	29/49155	Manufacturing circuit on or in base
29/49064	by coating	29/49156	with selective destruction of conductive paths
29/49066	Preformed winding	29/49158	with molding of insulated base
29/49067	Specified diverse magnetic materials	29/4916	Simultaneous circuit manufacturing
29/49069	Data storage inductor or core	29/49162	by using wire as conductive path
29/49071	by winding or coiling	29/49163	with sintering of base
29/49073	by assembling coil and core	29/49165	by forming conductive walled aperture in base
29/49075	including permanent magnet or core	29/49167	with deforming of conductive path
29/49076	From comminuted material	29/49169	Assembling electrical component directly to terminal or elongated conductor
29/49078	Laminated	29/49171	with encapsulating
29/4908	Acoustic transducer	29/49172	by molding of insulating material
29/49082	Resistor making	29/49174	Assembling terminal to elongated conductor
29/49083	Heater type	29/49176	with molding of electrically insulating material
29/49085	Thermally variable	29/49178	by shrinking of cover
29/49087	with envelope or housing	29/49179	by metal fusion bonding
29/49089	Filling with powdered insulation	29/49181	by deforming
29/49091	with direct compression of powdered insulation	29/49183	of ferrule about conductor and terminal
29/49092	Powdering the insulation	29/49185	of terminal
29/49094	by oxidation	29/49187	with forming eyelet from elongated conductor
29/49096	with winding	29/49188	with penetrating portion
29/49098	Applying terminal	29/4919	Through insulation
29/49099	Coating resistive material on a base		

29/49192 with insulation removal	29/49288 Connecting rod making
29/49194 Assembling elongated conductors, e.g., splicing, etc.	29/4929 including metallurgical bonding
29/49195 with end-to-end orienting	29/49291 including metal forging or die shaping
29/49197 including fluid evacuating or pressurizing	29/49293 Camshaft making
29/49199 including deforming of joining bridge	29/49295 Push rod or rocker arm making
29/49201 with overlapping orienting	29/49297 Seal or packing making
29/49202 including oppositely facing end orienting	29/49298 Poppet or I.C. engine valve or valve seat making
29/49204 Contact or terminal manufacturing	29/493 Valve guide making
29/49206 by powder metallurgy	29/49302 Repairing, converting, servicing or salvaging
29/49208 by assembling plural parts	29/49304 Valve tappet making
29/4921 with bonding	29/49306 Valve seat making
29/49211 of fused material	29/49307 Composite or hollow valve stem or head making
29/49213 Metal	29/49309 including forging
29/49215 by impregnating a porous mass	29/49311 including extruding
29/49217 by elastic joining	29/49313 including casting
29/49218 with deforming	29/49314 with assembly or composite article making
29/4922 with molding of insulation	29/49316 Impeller making
29/49222 forming array of contacts or terminals	29/49318 Repairing or disassembling
29/49224 with coating	29/4932 Turbomachine making
29/49226 Electret making	29/49321 Assembling individual fluid flow interacting members, e.g., blades, vanes, buckets, on rotary support member
29/49227 Insulator making	29/49323 Assembling fluid flow directing devices, e.g., stators, diaphragms, nozzles
29/49229 Prime mover or fluid pump making	29/49325 Shaping integrally bladed rotor
29/49231 I.C. [internal combustion] engine making	29/49327 Axial blower or fan
29/49233 Repairing, converting, servicing or salvaging	29/49329 Centrifugal blower or fan
29/49234 Rotary or radial engine making	29/4933 Fluid coupling device
29/49236 Fluid pump or compressor making	29/49332 Propeller making
29/49238 Repairing, converting, servicing or salvaging	29/49334 Utilizing hollow tube blank
29/4924 Scroll or peristaltic type	29/49336 Blade making
29/49242 Screw or gear type, e.g., Moineau type	29/49337 Composite blade
29/49243 Centrifugal type	29/49339 Hollow blade
29/49245 Vane type or other rotary, e.g., fan	29/49341 with cooling passage
29/49247 Valve lifter making	29/49343 Passage contains tubular insert
29/49249 Piston making	29/49345 Catalytic device making
29/4925 Repairing, converting, servicing or salvaging	29/49346 Rocket or jet device making
29/49252 Multi-element piston making	29/49348 Burner, torch or metallurgical lance making
29/49254 Utilizing a high energy beam, e.g., laser, electron beam	29/4935 Heat exchanger or boiler making
29/49256 with assembly or composite article making	29/49352 Repairing, converting, servicing or salvaging
29/49258 with thermal barrier or heat flow provision	29/49353 Heat pipe device making
29/49259 with fiber reinforced structure	29/49355 Solar energy device making
29/49261 by composite casting or molding	29/49357 Regenerator or recuperator making
29/49263 by coating or cladding	29/49359 Cooling apparatus making, e.g., air conditioner, refrigerator
29/49265 Ring groove forming or finishing	29/49361 Tube inside tube
29/49266 Gudgeon pin, wrist pin, piston pin, or boss therefor	29/49362 Tube wound about tube
29/49268 with other attaching provision for connecting rod	29/49364 Tube joined to flat sheet longitudinally, i.e., tube sheet
29/4927 Cylinder, cylinder head or engine valve sleeve making	29/49366 Sheet joined to sheet
29/49272 with liner, coating, or sleeve	29/49368 with inserted tubes
29/49274 Piston ring or piston packing making	29/49369 Utilizing bond inhibiting material
29/49275 including forging or hammering	29/49371 with subsequent fluid expansion
29/49277 including casting or molding	29/49373 Tube joint and tube plate structure
29/49279 including rolling or die forming, e.g., drawing, punching	29/49375 including conduit expansion or inflation
29/49281 including coating or plating	29/49377 Tube with heat transfer means
29/49282 including grinding or honing	29/49378 Finned tube
29/49284 including machining or angular cutting	29/4938 Common fin traverses plurality of tubes
29/49286 Crankshaft making	29/49382 Helically finned
	29/49384 Internally finned

29/49385	Made from unitary workpiece, i.e., no assembly	29/49487	with axle or hub
29/49387	Boiler making	29/49488	Steering wheel
29/49389	Header or manifold making	29/4949	Material winding, e.g., reel, spool
29/49391	Tube making or reforming	29/49492	Land wheel
29/49393	with metallurgical bonding	29/49494	Assembling tire to wheel body
29/49394	Accumulator making	29/49496	Disc type wheel
29/49396	Condenser, evaporator or vaporizer making	29/49497	Assembling wheel disc to rim and hub
29/49398	Muffler, manifold or exhaust pipe making	29/49499	Assembling wheel disc to rim
29/494	Fluidic or fluid actuated device making	29/49501	with disc shaping
29/49401	Fluid pattern dispersing device making, e.g., ink jet	29/49503	Integral rim and disc making
29/49403	Tapping device making	29/49504	Disc shaping
29/49405	Valve or choke making	29/49506	Tensioned spoke type wheel making
29/49407	Repairing, converting, servicing or salvaging	29/49508	Tensioning all spokes simultaneously
29/49409	Valve seat forming	29/4951	Tensioning spokes in series
29/4941	Valve stem or tire valve making	29/49512	Tensioning spokes individually
29/49412	with assembly, disassembly or composite article making	29/49513	Compression, e.g., nontension, spoke type wheel making
29/49414	Joining plural semi-circular components	29/49515	Joining spokes to rim and hub
29/49416	with material shaping or cutting	29/49517	Joining spokes to rim
29/49417	including molding or casting	29/49519	Joining spokes to hub
29/49419	including machining or drilling	29/4952	Making plural spokes from a single blank
29/49421	including metallurgical bonding	29/49522	Individual spoke making
29/49423	including metal deforming	29/49524	Rim making
29/49425	including metallurgical bonding	29/49526	with assembling
29/49426	including metal shaping and diverse operation	29/49528	Demountable rim making
29/49428	Gas and water specific plumbing component making	29/49529	Die-press shaping
29/4943	Plumbing fixture making	29/49531	Roller forming
29/49432	Nozzle making	29/49533	Hub making
29/49433	Sprayer	29/49535	with assembling
29/49435	Flexible conduit or fitting therefor	29/49536	Hub shaping
29/49437	Flue connector device making	29/49538	Tire making
29/49439	Trap making	29/4954	Wheel trim making, e.g., wheel cover, hubcap
29/4944	Return connector device making	29/49542	with means for retaining trim member on wheel
29/49442	T-shaped fitting making	29/49544	Roller making
29/49444	Elbow or L-shaped fitting making	29/49545	Repairing or servicing
29/49446	Ferrule making or reforming	29/49547	Assembling preformed components
29/49448	Agricultural device making	29/49549	Work contacting surface element assembled to core
29/49449	Traction apparatus, e.g., for tractor	29/49551	Work contacting surface wound about core
29/49451	Harvester guard	29/49552	with prestressing of component by heat differential, e.g., shrink, fit
29/49453	Pulley making	29/49554	Work contacting surface having annular axial sections
29/49455	Assembly	29/49556	Work contacting surface element assembled to end support members
29/49456	with shaping	29/49558	Includes securing removable cover on roller
29/49458	Disc splitting to form pulley rim groove	29/4956	Fabricating and shaping roller work contacting surface element
29/4946	Groove forming in sheet metal pulley rim	29/49561	toothed roller
29/49462	Gear making	29/49563	with coating or casting about a core
29/49464	Assembling of gear into force transmitting device	29/49565	One-piece roller making
29/49465	Gear mounting	29/49567	Dental appliance making
29/49467	Gear shaping	29/49568	Orthodontic device making
29/49469	Worm gear	29/4957	Sound device making
29/49471	Roll forming	29/49572	Hearing aid component making
29/49472	Punching or stamping	29/49574	Musical instrument or tuning fork making
29/49474	Die-press shaping	29/49575	including diaphragm or support therefor
29/49476	Gear tooth cutting	29/49577	Phonograph component making
29/49478	Gear blank making	29/49579	Watch or clock making
29/4948	with specific gear material	29/49581	having arbor, pinion, or balance
29/49481	Wheel making		
29/49483	Railway or trolley wheel making		
29/49485	Multiple part or composite		

29/49583 . . . having indicia, face, or dial	29/49682 Assembling of race and rolling anti-friction members
29/49584 . . . having case, cover, or back	29/49684 with race making
29/49586 . . . having crown, stem, or pendent	29/49686 Assembling of cage and rolling anti-friction members
29/49588 . . Jewelry or locket making	29/49687 with cage making
29/4959 . . . Human adornment device making	29/49689 Race making
29/49591 Bracelet making	29/49691 Cage making
29/49593 Finger ring making	29/49693 Roller making
29/49595 . . . Latch, clasp, or fastener component making	29/49694 Ball making
29/49597 . . . Ornamental stock making	29/49696 . . . Mounting
29/49599 . . Knob or knob shank making	29/49698 . . . Demounting
29/496 . . . Multiperforated metal article making	29/497 . . . Pre-usage process, e.g., preloading, aligning
29/49602 . . . Coil wound wall screen	29/49702 . . . Lubricating
29/49604 . . . Filter	29/49703 . . . Sealing
29/49606 . . Turnbuckle making	29/49705 . . . Coating or casting
29/49607 . . Spring-head clip making	29/49707 . . . Bearing surface treatment
29/49609 . . Spring making	29/49709 . . . Specific metallic composition
29/49611 . . . for vehicle or clutch	29/4971 . . . Nonmetallic bearing element
29/49613 . . . for human comfort	29/49712 . . Ball making
29/49615 . . . Resilient shock or vibration absorber utility	29/49714 . . . Hollow ball
29/49616 . . Structural member making	29/49716 . . Converting
29/49618 . . . Restoring existing member, e.g., reinforcing, repairing	29/49718 . . Repairing
29/4962 . . . Grille making	29/49719 . . . Seal or element thereof
29/49622 . . . Vehicular structural member making	29/49721 . . . with disassembling
29/49623 . . . Static structure, e.g., a building component	29/49723 including reconditioning of part
29/49625 Openwork, e.g., a truss, joist, frame, lattice-type or box beam	29/49725 by shaping
29/49627 Frame component	29/49726 Removing material
29/49629 Panel	29/49728 and by a metallurgical operation, e.g., welding, diffusion bonding, casting
29/49631 Columnar member	29/4973 Replacing of defective part
29/49632 Metal reinforcement member for nonmetallic, e.g., concrete, structural element	29/49732 . . . by attaching repair preform, e.g., remaking, restoring, or patching
29/49634 Beam or girder	29/49734 and removing damaged material
29/49636 . . Process for making bearing or component thereof	29/49735 Mechanically attaching preform with separate fastener
29/49638 . . . Repairing	29/49737 Metallurgically attaching preform
29/49639 . . . Fluid bearing	29/49739 Mechanically attaching preform by separate fastener
29/49641 . . . Linear bearing	29/49741 Screw threaded fastener
29/49643 . . . Rotary bearing	29/49742 Metallurgically attaching preform
29/49645 Thrust bearing	29/49744 Screw threaded preform
29/49647 Plain bearing	29/49746 . . . by applying fluent material, e.g., coating, casting
29/49648 Self-adjusting or self-aligning, including ball and socket type, bearing and component making	29/49748 . . . by shaping, e.g., bending, extruding, turning, etc.
29/4965 Deforming socket to secure ball	29/4975 including heating
29/49652 Die-press shaping	29/49751 . . Scrap recovering or utilizing
29/49654 having liner	29/49753 . . . Metalworking to consolidate scrap
29/49655 having liner	29/49755 . . . Separating one material from another
29/49657 Socket making	29/49757 by burning or heating
29/49659 by molding or casting	29/49758 . . During simulated operation or operating conditions
29/49661 Nonmetallic socket	29/4976 . . . Temperature
29/49663 by assembling	29/49762 . . Center locating and shaping
29/49664 Ball making	29/49764 . . with testing or indicating
29/49666 with metallurgical bonding	29/49766 . . . torquing threaded assemblage or determining torque herein
29/49668 Sleeve or bushing making	29/49767 Determining relative number of threaded member rotations
29/4967 Nonmetallic	29/49769 . . . Using optical instrument [excludes mere human eyeballing]
29/49671 Strip or blank material shaping	
29/49673 Die-press shaping	
29/49675 having inner lining layer	
29/49677 having liner	
29/49679 Anti-friction bearing or component thereof	
29/4968 Assembling of race, cage, and rolling anti-friction members	

29/49771 . . . Quantitative measuring or gauging	29/49856 Allowing assembled sphere to move in single plane only
29/49773 by radioactive tracing	29/49858 of flange into tubular socket
29/49774 by vibratory or oscillatory movement	29/4986 Outwardly deforming internally fitted rod
29/49776 Pressure, force, or weight determining	29/49861 . . . Sizing mating parts during final positional association
29/49778 . . . with aligning, guiding, or instruction	29/49863 . . . with prestressing of part
29/4978 Assisting assembly or disassembly	29/49865 by temperature differential [e.g., shrink fit]
29/49782 . . of a slide fastener	29/49867 of skin on frame member
29/49783 . . . of slider	29/49869 by flexing
29/49785 . . . of interlocking element	29/4987 Elastic joining of parts
29/49787 . . Obtaining plural composite product pieces from preassembled workpieces	29/49872 Confining elastic part in socket
29/49789 . . Obtaining plural product pieces from unitary workpiece	29/49874 Prestressing rod, filament or strand
29/4979 . . . Breaking through weakened portion	29/49876 by snap fit
29/49792 . . . Dividing through modified portion	29/49877 . . . of flexible wall, expansible chamber devices [e.g., bellows]
29/49794 . . . Dividing on common outline	29/49879 . . . Spaced wall tube or receptacle
29/49796 . . . Coacting pieces	29/49881 . . . of separate helix [e.g., screw thread]
29/49798 . . . Dividing sequentially from leading end, e.g., by cutting or breaking	29/49883 . . . Ribbing
29/49799 . . Providing transitory integral holding or handling portion	29/49885 . . . with coating before or during assembling
29/49801 . . Shaping fiber or fibered material	29/49886 to roughen surface
29/49803 . . Magnetically shaping	29/49888 . . . Subsequently coating
29/49805 . . Shaping by direct application of fluent pressure	29/4989 . . . with spreading of cable strands
29/49806 . . . Explosively shaping	29/49892 . . . Joining plate edge perpendicularly to frame
29/49808 . . Shaping container end to encapsulate material	29/49893 . . . Peripheral joining of opposed mirror image parts to form a hollow body
29/4981 . . Utilizing transitory attached element or associated separate material	29/49895 . . . Associating parts by use of aligning means [e.g., use of a drift pin or a "fixture"]
29/49812 . . . Temporary protective coating, impregnation, or cast layer	29/49897 Registering mating opposed tool parts [e.g., registering a punch and a cooperating die]
29/49813 . . Shaping mating parts for reassembly in different positions	29/49899 by multiple cooperating aligning means
29/49815 . . Disassembling	29/49901 Sequentially associating parts on stationary aligning means
29/49817 . . . with other than ancillary treating or assembling	29/49902 by manipulating aligning means
29/49819 . . . with conveying of work or disassembled work part	29/49904 . . . Assembling a subassembly, then assembling with a second subassembly
29/49821 . . . by altering or destroying work part or connector	29/49906 . . . Metal deforming with nonmetallic bonding
29/49822 . . . by applying force	29/49908 . . . Joining by deforming
29/49824 to elastically deform work part or connector	29/49909 Securing cup or tube between axially extending concentric annuli
29/49826 . . Assembling or joining	29/49911 by expanding inner annulus
29/49828 . . . Progressively advancing of work assembly station or assembled portion of work	29/49913 by constricting outer annulus
29/49829 Advancing work to successive stations [i.e., assembly line]	29/49915 Overedge assembling of seated part
29/49831 Advancing station	29/49917 by necking in cup or tube wall
29/49833 . . . Punching, piercing or reaming part by surface of second part	29/49918 At cup or tube end
29/49835 with shaping	29/4992 by flaring inserted cup or tube end
29/49837 of first part	29/49922 by bending over projecting prongs
29/49838 . . . by stringing	29/49924 of parallel side-by-side elongated members
29/4984 . . . Retaining clearance for motion between assembled parts	29/49925 Inward deformation of aperture or hollow body wall
29/49842 Between tube-forming helical coils	29/49927 Hollow body is axially joined cup or tube
29/49844 Through resilient media	29/49929 Joined to rod
29/49845 by deforming interlock	29/49931 Joined to overlapping ends of plural rods
29/49847 by folding part into plural ears	29/49933 After thinning
29/49849 by wrapping around	29/49934 by axially applying force
29/49851 of link closure	29/49936 Surface interlocking
29/49853 of sphere, i.e., ball, in socket	29/49938 Radially expanding part in cavity, aperture, or hollow body
29/49854 Ball point pen making	29/4994 Radially expanding internal tube
	29/49941 Peripheral edge joining of abutting plates
	29/49943 Riveting

29/49945 . . . by driven force fit	29/5126 Swiss type
29/49947 . . . by applying separate fastener	29/5127 . . . Blank turret
29/49948 Multipart cooperating fastener [e.g., bolt and nut]	29/5128 Rotary work - vertical axis
29/4995 Nonthreaded	29/5129 Rotary work - horizontal axis
29/49952 At least one part is nonmetallic	29/513 Stationary work
29/49954 Fastener deformed after application	29/5132 Belt drive
29/49956 Riveting	29/5133 Crankshaft
29/49957 At least one part nonmetallic	29/5134 Collapsible tube
29/49959 Nonresilient fastener	29/5135 Endless belt
29/49961 At least one part nonmetallic	29/5136 Separate tool stations for selective or successive operation on work
29/49963 Threaded fastener	29/5137 including assembling or disassembling station
29/49964 At least one part nonmetallic	29/5138 and means to machine work part to fit cooperating work part
29/49966 with supplemental joining	29/5139 and means to sever work prior to disassembling
29/49968 Metal fusion joining	29/514 comprising means to strip insulation from wire
29/4997 At least one part nonmetallic	29/5141 and means to stake electric wire to commutator or armature in assembling of electric motor or generator
29/49972 . . . with separating, localizing, or eliminating of as-cast defects from a metal casting [e.g., anti-pipe]	29/5142 and means to sever work from supply
29/49973 . . . Compressing ingot while still partially molten	29/5143 and means to machine product
29/49975 . . . Removing defects	29/5145 to sever product to length
29/49977 From center of ingot to leave hollow blank	29/5146 . . . Common reciprocating support for spaced tools
29/49979 After deforming	29/5147 . . . including composite tool
29/4998 . . . Combined manufacture including applying or shaping of fluent material	29/5148 . . . including severing means
29/49982 . . . Coating	29/5149 to sever electric terminal from supply strip
29/49984 and casting	29/515 to trim electric component
29/49986 Subsequent to metal working	29/5151 Means comprising hand-manipulatable implement
29/49988 . . . Metal casting	29/5152 . . . with turret mechanism
29/49989 Followed by cutting or removing material	29/5153 . . . Multiple turret
29/49991 Combined with rolling	29/5154 . . . tool turret
29/49993 . . . Filling of opening	29/5155 Rotary tool holder
29/49995 . . . Shaping one-piece blank by removing material	29/5157 Sliding tool holder
29/49996 . . . Successive distinct removal operations	29/5158 Fluid operated
29/49998 . . . Work holding	29/5159 Cam operated
29/50 . . . Convertible metal working machine	29/516 Longitudinal turret axis
29/505 . . . Vise type	29/5161 Transverse turret axis
29/51 . . . Plural diverse manufacturing apparatus including means for metal shaping or assembling	29/5162 Lever operated
29/5101 . . . Slide fastener or slide fastener element	29/5163 Rack-and-pinion operated
29/5102 . . . Binding or covering and cutting	29/5164 Screw operated
29/5103 . . . Cutting covering material only	29/5165 . . . including rotating and/or locking means
29/5104 . . . Type of machine	29/5166 Frictional and positive
29/5105 . . . Drill press	29/5167 Lock means for tool or work turrets
29/5107 Drilling and other	29/5168 . . . Multiple-tool holder
29/5108 Portable	29/517 . . . Laterally movable stock holder
29/5109 . . . Lathe	29/5171 . . . Axial tool and transversely movable slide rest
29/511 Grinding attachment	29/5172 Rotary tool spindle
29/5111 Pulley or wheel	29/5173 . . . Longitudinally and transversely movable
29/5112 Convertible	29/5174 Rotary tool spindle
29/5113 Commutator	29/5175 . . . Oscillating tool
29/5114 Lathe and tool	29/5176 . . . including machining means
29/5115 . . . Planer	29/5177 . . . and work-holder for assembly
29/5116 . . . forging and bending, cutting or punching	29/5178 . . . Attachment
29/5117 . . . Fastener [zipper]	29/5179 . . . Speed controller
29/5118 . . . Riveting	29/518 . . . Carriage stop mechanism
29/512 . . . Ball making	29/5182 . . . Flash remover
29/5121 . . . Wire working	29/5183 . . . Welding strip ends
29/5122 . . . with means to feed work during tool contact	29/5184 . . . Casting and working
29/5123 . . . including nonrotary flying tool	29/5185 . . . Tube making
29/5124 . . . with means to feed work intermittently from one tool station to another	
29/5125 . . . Stock turret	

29/5186	Covering	29/53161	including deforming means
29/5187	Wire working	29/53165	Magnetic memory device
29/5188	Radiator making	29/5317	Laminated device
29/5189	Printing plate	29/53174	Means to fasten electrical component to wiring board, base, or substrate
29/519	Turret	29/53178	Chip component
29/5191	Assembly	29/53183	Multilead component
29/5192	Armature	29/53187	Multiple station assembly apparatus
29/5193	Electrical connector or terminal	29/53191	Means to apply vacuum directly to position or hold work part
29/5195	Tire valve or spark plug	29/53196	Means to apply magnetic force directly to position or hold work part
29/5196	Multiple station with conveyor	29/532	Conductor
29/5197	Multiple stations working strip material	29/53204	Electrode
29/5198	Continuous strip	29/53209	Terminal or connector
29/5199	Work on tubes	29/53213	Assembled to wire-type conductor
29/52	Plural diverse manufacturing apparatus	29/53217	Means to simultaneously assemble multiple, independent conductors to terminal
29/53	Means to assemble or disassemble	29/53222	Means comprising hand-manipulatable implement
29/53004	with means to regulate operation by use of templet, tape, card or other replaceable information supply	29/53226	Fastening by deformation
29/53009	with comparator	29/5323	Fastening by elastic joining
29/53013	Computer input	29/53235	Means to fasten by deformation
29/53017	Web or strand-carried information supply	29/53239	Means to fasten by elastic joining
29/53022	with means to test work or product	29/53243	Multiple, independent conductors
29/53026	with randomly actuated stopping or disabling means	29/53248	Switch or fuse
29/5303	Responsive to condition of work or product	29/53252	Means to simultaneously fasten three or more parts
29/53035	Responsive to operative [e.g., safety device, etc.]	29/53257	Means comprising hand-manipulatable implement
29/53039	with control means energized in response to activator stimulated by condition sensor	29/53261	Means to align and advance work part
29/53043	including means to divert defective work part	29/53265	with work-holder for assembly
29/53048	Multiple station assembly or disassembly apparatus	29/5327	Means to fasten by deforming
29/53052	including position sensor	29/53274	Means to disassemble electrical device
29/53057	Responsive to timer	29/53278	Storage cell or battery
29/53061	Responsive to work or work-related machine element	29/53283	Means comprising hand-manipulatable implement
29/53065	with means to fasten by deformation	29/53287	Means to place traveler on ring or ring on bobbin of a textile machine
29/5307	Self-piercing work part	29/53291	Slide fastener
29/53074	with means to fasten by elastic joining	29/53296	Means to assemble stop onto stringer
29/53078	with means to fasten by frictional fitting	29/533	Means to assemble slider onto stringer
29/53083	including means to apply magnetic force directly to position or hold work	29/53304	Means to assemble teeth onto stringer
29/53087	with signal, scale, illuminator, or optical viewer	29/53309	Disassembly means
29/53091	for work-holder for assembly or disassembly	29/53313	Means to interrelatedly feed plural work parts from plural sources without manual intervention
29/53096	including means to provide a controlled environment	29/53317	Box or pallet assembly means
29/531	Nuclear device	29/53322	Means to assemble container
29/53104	Roller or ball bearing	29/53326	Handle to container
29/53109	including deforming means	29/5333	Label to container
29/53113	Heat exchanger	29/53335	Pressurized dispensing container
29/53117	including means to manipulate heat exchanger tube bundle	29/53339	Hypodermic syringe
29/53122	including deforming means	29/53343	including fluid component
29/53126	Means to place sheath on running-length core	29/53348	Running-length work
29/5313	Means to assemble electrical device	29/53352	Means including orbiting running-length work supply
29/53135	Storage cell or battery	29/53357	Pipe section
29/53139	including deforming means	29/53361	Assembled to article
29/53143	Motor or generator	29/53365	Multiple station assembly apparatus
29/53148	Means to assemble commutator	29/5337	including assembly pallet
29/53152	Means to position insulation	29/53374	including turret-type conveyor
29/53157	Means to stake wire to commutator or armature		

- 29/53378 . . . including converging conveyors
- 29/53383 . . . and means to fasten work parts together
- 29/53387 by deforming
- 29/53391 by elastic joining
- 29/53396 by friction fit
- 29/534 . . Multiple station assembly or disassembly apparatus
- 29/53404 . . . including turret-type conveyor
- 29/53409 . . . including converging conveyors
- 29/53413 and primary central conveyor
- 29/53417 . . . Means to fasten work parts together
- 29/53422 by deforming
- 29/53426 by elastic joining
- 29/5343 . . Means to drive self-piercing work part
- 29/53435 . . including assembly pallet
- 29/53439 . . including provision to utilize thermal expansion of work
- 29/53443 . . Means to assemble or disassemble container and fluid component
- 29/53448 . . Vehicle wheel
- 29/53452 . . . Railway wheel
- 29/53457 . . Tumbler lock
- 29/53461 . . toy doll
- 29/53465 . . Film or tape cartridge
- 29/5347 . . Crystal to watch or clock
- 29/53474 . . Means to insert or extract pen point
- 29/53478 . . with magazine supply
- 29/53483 . . . and magnetic work-holder or positioner
- 29/53487 . . . Assembling means comprising hand-manipulatable implement
- 29/53491 One work part comprising living tissue
- 29/53496 comprising driver for snap-off-mandrel fastener; e.g., Pop [TM] riveter
- 29/535 One work part comprising nut or screw
- 29/53504 One work part comprising paper clip
- 29/53509 Means to assemble tire stud into tire tread
- 29/53513 Means to fasten by deforming
- 29/53517 Fastening sinker to fishing line
- 29/53522 . . . Means to fasten by deforming
- 29/53526 . . Running-length work
- 29/5353 . . . Assembled on core
- 29/53535 . . including means to vibrate work
- 29/53539 . . including work conveyor
- 29/53543 . . . including transporting track
- 29/53548 and work carrying vehicle
- 29/53552 . . Valve applying or removing
- 29/53557 . . . Engine valve unit puller or applier
- 29/53561 . . . Engine valve spring compressor [only]
- 29/53565 Plural spring engagement
- 29/5357 Screw operated
- 29/53574 Parallel or tong type, side entrance
- 29/53578 Lever operated
- 29/53583 Single jaw or valve engagement
- 29/53587 Plier type
- 29/53591 . . . to or from wheel rim of resilient tire or tube
- 29/53596 . . . Removal tool
- 29/536 . . Piston ring inserter or remover
- 29/53604 . . . Plier-type operation
- 29/53609 with ring encirclement
- 29/53613 . . Spring applier or remover
- 29/53617 . . . Transmission spring
- 29/53622 . . . Helical spring
- 29/53626 . . . Flat spiral spring [e.g., watch or clock type]
- 29/5363 . . . Circular spring
- 29/53635 . . . Leaf spring
- 29/53639 . . Means to stake watch or clock
- 29/53643 . . . Plier type
- 29/53648 . . Brake lining to brake shoe
- 29/53652 . . Tube and coextensive core
- 29/53657 . . to apply or remove a resilient article [e.g., tube, sleeve, etc.]
- 29/53661 . . . Nipple to nursing bottle
- 29/53665 . . . Well protector to sucker rod
- 29/5367 . . Coupling to conduit
- 29/53674 . . Loose-leaf sheet binder
- 29/53678 . . Compressing parts together face to face
- 29/53683 . . Spreading parts apart or separating them from face to face engagement
- 29/53687 . . by rotation of work part
- 29/53691 . . . Means to insert or remove helix
- 29/53696 . . Means to string
- 29/537 . . tool handle and tool
- 29/53704 . . tool chuck and tool
- 29/53709 . . Overedge assembling means
- 29/53713 . . . Belt-hook attacher
- 29/53717 . . . Annular work
- 29/53722 with radially acting tool inside annular work
- 29/53726 with second workpiece inside annular work one workpiece moved to shape the other
- 29/5373 comprising driver for snap-off-mandrel fastener; e.g., Pop [TM] riveter
- 29/53735 including near side fastener shaping tool
- 29/53739 Pneumatic- or fluid-actuated tool
- 29/53743 Liquid
- 29/53748 and gas
- 29/53752 having rotary drive mechanism
- 29/53757 having allochiral actuating handles
- 29/53761 having repositionable annulus engaging tool
- 29/53765 including near side fastener shaping tool
- 29/5377 . . . Riveter
- 29/53774 Single header
- 29/53778 Pipe joiner
- 29/53783 . . . Clip applier
- 29/53787 . . . Binding or covering
- 29/53791 Edge binding
- 29/53796 . . Puller or pusher means, contained force multiplying operator
- 29/538 . . . Hubcap and hub
- 29/53804 . . . Battery post and terminal
- 29/53809 . . . Cotter pin and cooperating member
- 29/53813 Plier type means
- 29/53817 . . . Valve stem pin or key and another member
- 29/53822 . . . Machine key and another member
- 29/53826 . . . Arbor-type press means
- 29/5383 . . . having fluid operator
- 29/53835 . . . having wedge operator
- 29/53839 . . . having percussion or explosive operator
- 29/53843 Tube, sleeve, or ferrule inserting or removing
- 29/53848 . . . having screw operator
- 29/53852 C-frame
- 29/53857 Central screw, work-engagers around screw
- 29/53861 Work-engager arms along or parallel to screw

29/53865	with arm connecting engaging means	70/413 . . .	Padlocks
29/5387	Pivotal arms	70/415 . . .	Combination and/or key-controlled
29/53874	Pivotal grippers on screw	70/417 . . .	Combination-controlled
29/53878	Tubular or tube segment forms work-engager	70/42	Non-shackle type
29/53883	Screw threaded work-engager	70/422	Rigid shackle
29/53887	Movable grippers on screw	70/424	Sliding
29/53891	Plate or bar forms work-engager	70/426	Removable
29/53896	having lever operator	70/428	Pivoted
29/539	Plier type means	70/43	Sliding detent
29/53904 . . .	Means comprising piston ring group contractor or holder	70/433	Swinging detent
29/53909 . . .	Means comprising hand manipulatable tool	70/435	Flexible shackle
29/53913 . . .	Aligner or center	70/437	Key-controlled
29/53917	Tube with tube	70/439	Non-shackle type
29/53922	Auto wheel with auto chassis	70/441	Housing extension and cooperating detent
29/53926	Clutch plates	70/443	Single stem or shank
29/5393	Means comprising impact receiving tool	70/446	Rigid shackle
29/53935	C-frame	70/448	Divided shackle
29/53939	Thread protector [e.g., wheel axle type]	70/45	Divided jaw type
29/53943	Hand gripper for direct push or pull	70/452	Sliding
29/53948	Centrifugal separator	70/454	Removable
29/53952	Tube sleeve or ferrule applying or removing	70/457	Arcuate locus
29/53957	Thread-tapping grip	70/459	Both legs engaged
29/53961 . . .	with work-holder for assembly	70/461	Short leg engaged
29/53965	for assembling a luminescent mantle	70/463	Long leg engaged
29/5397	and assembling press [e.g., truss assembling means, etc.]	70/465	Pivoted
29/53974	having means to permit support movement while work is thereon	70/467	Sliding detent
29/53978 . . .	including means to relatively position plural work parts	70/47	Free end only engaged
29/53983 . . .	Work-supported apparatus	70/472	Pivoted end only engaged
29/53987 . . .	Tube, sleeve or ferrule	70/474	Swinging detent
29/53991 . . .	Work gripper, anvil, or element	70/476	Free end only engaged
29/53996 . . .	by deforming	70/478	Pivoted end only engaged
29/54	Miscellaneous apparatus	70/48	Arcuate locus

Former US Class 70 series

70/00	Locks		
70/10	Miscellaneous	70/483	Flexible shackle
70/20	Attack-actuated defeating mechanisms	70/485	With seal
70/25	With reset mechanisms	70/487	Parts, accessories, attachments and adjuncts
70/30	Hasp	70/489	Housings
70/308	Combination lock	70/491	Shackles
70/317	Hasp-carried	70/493	Protectors
70/325	Keeper-carried	70/496	Sheaths
70/333	Key lock	70/498	Shields or canopies
70/342	Hasp-carried	70/50	Special application
70/35	Keeper-encasing	70/5004	For antitheft signaling device on protected article
70/358	Dead bolt	70/5009	For portable articles
70/367	Latching bolt	70/5013	Canes, umbrellas, apparel
70/375	Dead bolt	70/5018	Robes
70/383	Latching bolt	70/5022	Tools
70/392	Keeper-carried	70/5027	Supporting stands
70/40	Portable	70/5031	Receptacle
70/402	Fetters	70/5035	Bag
70/404	Manacles and cuffs	70/504	Collapsible throat
70/407	Nippers	70/5044	Pivoted rigid jaw
70/409	Shackles	70/5049	Attache or briefcase, portfolio
70/411	Clamps	70/5053	Interengageable slide fastener type
		70/5058	Trunk and/or suitcase
		70/5062	Projecting fixed or movable lug type
		70/5066	Bolt type
		70/5071	Hasp controlled
		70/5075	Link and lever of hasp type
		70/508	Hasp type
		70/5084	Hasp-carried lock
		70/5089	Loop type

70/5093	. . . . .	For closures	70/5358	. . . . .	Combination operable only
70/5097	. . . . .	Cabinet	70/5363	. . . . .	Key operable only
70/5102	. . . . .	Projecting lug type	70/5367	. . . . .	Screw
70/5106	. . . . .	External catch	70/5372	. . . . .	Locking latch bolts, biased
70/5111	. . . . .	Projectable bolt	70/5376	. . . . .	Keeper interlocking
70/5115	. . . . .	Multiple bolts	70/5381	. . . . .	Projectable beyond normal biased position
70/5119	. . . . .	Multidirectional displacement	70/5385	. . . . .	Spring projected
70/5124	. . . . .	Swinging and hooked end	70/5389	. . . . .	Manually operable
70/5128	. . . . .	Drawer	70/5394	. . . . .	Directly acting dog for exterior, manual, bolt manipulator
70/5133	. . . . .	Dead bolt	70/5398	. . . . .	Related dog for interior, manual, bolt manipulator
70/5137	. . . . .	Till	70/5403	. . . . .	Dog having a dog
70/5142	. . . . .	Combination	70/5407	. . . . .	Related dogging means for latch-bolt
70/5146	. . . . .	Window	70/5412	. . . . .	Dog and dog actuator always interconnected
70/515	. . . . .	Sliding sash	70/5416	. . . . .	Exterior manipulator declutched from bolt when dogged
70/5155	. . . . .	Door	70/542	. . . . .	Manual dog-controller concentric with bolt manipulator
70/5159	. . . . .	Emergency exit	70/5425	. . . . .	Shiftable rollback serves as dog
70/5164	. . . . .	Links to limit opening	70/5429	. . . . .	Additional dog-controller key actuated for dogging and undogging
70/5168	. . . . .	Braces	70/5434	. . . . .	Dog-controller axially slidable and axially rotatable
70/5173	. . . . .	Sliding door	70/5438	. . . . .	Dog-controller rotatable
70/5177	. . . . .	Extending keeper	70/5442	. . . . .	Key-actuated lock releases dog
70/5181	. . . . .	Rigid or fixed	70/5447	. . . . .	Manual bolt-manipulator operation releases dog
70/5186	. . . . .	Extensible	70/5451	. . . . .	Manual bolt-manipulator operation releases dog
70/519	. . . . .	Projecting or extending bolt	70/5456	. . . . .	Interior manual bolt-manipulator serves as dog-controller
70/5195	. . . . .	Projectable bolt	70/546	. . . . .	For both dogging and undogging
70/5199	. . . . .	Swinging door	70/5465	. . . . .	Manual dog-controller
70/5204	. . . . .	Interfitting lock housing and keeper	70/5469	. . . . .	With additional lock actuated dog-controller
70/5208	. . . . .	Multiple dead bolts	70/5473	. . . . .	Additional dog-controller controls both dogging and undogging
70/5212	. . . . .	Sliding dead bolt	70/5478	. . . . .	Accessible at door edge
70/5217	. . . . .	Swinging dead bolt	70/5482	. . . . .	Slidable only
70/5221	. . . . .	Locking latch bolt, biased	70/5487	. . . . .	Manual bolt-manipulator is slidable only
70/5226	. . . . .	Combined dead bolt and latching bolt	70/5491	. . . . .	Manual bolt-manipulator is lever
70/523	. . . . .	Multiple dead bolts	70/5496	. . . . .	Freely movable external manipulator
70/5235	. . . . .	Multiple latch bolts	70/55	. . . . .	Dogged bolt or connections
70/5239	. . . . .	Dead bolt, dogged latch bolt	70/5504	. . . . .	Automatic
70/5243	. . . . .	Manually dogged latch bolt	70/5509	. . . . .	Snub bolt
70/5246	. . . . .	Dead bolts	70/5513	. . . . .	By manipulator
70/5248	. . . . .	Multiple	70/5518	. . . . .	Connections only
70/5252	. . . . .	Sliding and swinging	70/5522	. . . . .	Gravity projected
70/5257	. . . . .	Combination operable only	70/5527	. . . . .	Projecting mechanism is lock controlled
70/5261	. . . . .	Key operable only	70/5531	. . . . .	Combination and/or key operable
70/5265	. . . . .	Sliding and rotary	70/5535	. . . . .	Trip release
70/527	. . . . .	Sliding	70/554	. . . . .	Cover, lid, cap, encasing shield
70/5274	. . . . .	Combination operable only			
70/5279	. . . . .	Key operable only			
70/5283	. . . . .	Swinging			
70/5288	. . . . .	Combination operable only			
70/5292	. . . . .	Key operable only			
70/5296	. . . . .	Single			
70/5301	. . . . .	Sliding and swinging			
70/5305	. . . . .	Combination operable only			
70/531	. . . . .	Key operable only			
70/5314	. . . . .	Sliding and rotary			
70/5319	. . . . .	Sliding			
70/5323	. . . . .	Multidirectional displacement			
70/5327	. . . . .	Keeper interlocking			
70/5332	. . . . .	Curved			
70/5336	. . . . .	Combination operable only			
70/5341	. . . . .	Key operable only			
70/5345	. . . . .	Swinging			
70/535	. . . . .	Keeper and housing interlocking			
70/5354	. . . . .	With hooked end			

70/5544	Pivoted	70/5814	Push pin or button
70/5549	Cover-carried lock	70/5819	Handle-carried key lock
70/5553	Dead bolt	70/5823	Coaxial clutch connection
70/5558	Latching bolt	70/5827	Axially movable clutch
70/5562	Removable	70/5832	Lock and handle assembly
70/5566	External locking devices	70/5836	Wheel
70/5571	Freely movable when locked	70/5841	Rotation blocking
70/5575	Directly seating	70/5845	Spoke gap traversing type
70/558	Cover-carried lock	70/585	Brake type
70/5584	Dead bolt	70/5854	Bolt, nut, stud, stud-cap
70/5589	Latching bolt	70/5858	Locked stationary
70/5593	Movably seating	70/5863	Freely movable when locked
70/5597	Cover-carried lock	70/5867	Encased
70/5602	Dead bolt	70/5872	For cycles
70/5606	Latching bolt	70/5876	Anchors
70/5611	For control and machine elements	70/5881	Stands
70/5615	Valve	70/5885	Drive
70/5619	Locked stationary	70/5889	For automotive vehicles
70/5624	Externally mounted locking device	70/5894	Plural point
70/5628	Valve encasing	70/5898	With switch
70/5633	Housing-carried lock	70/5903	Hood
70/5637	With padlock	70/5907	With switch
70/5642	Rod	70/5912	Fuel valve
70/5646	Rotary shaft	70/5916	With switch
70/565	Locked stationary	70/592	Cap combined
70/5655	Housing-carried lock	70/5925	Transmission
70/5659	Dead bolt	70/5929	Cover combined
70/5664	Latching bolt	70/5934	Selective-type shift rod, fork or block
70/5668	Shaft-carried lock	70/5938	With switch
70/5673	Freely movable when locked	70/5942	Planetary type
70/5677	Shaft-carried clutch	70/5947	With switch
70/5681	Gear	70/5951	With switch
70/5686	Planetary	70/5956	Steering mechanism with switch
70/569	Lever	70/596	Pilot wheel control or linkage
70/5695	Guide	70/5965	Control levers with switch
70/5699	Quadrant	70/5969	Other element with switch
70/5704	Lever-carried lock	70/5973	Remote control
70/5708	Fixed lever-receiving keeper	70/5978	With switch
70/5712	Lever-carried lock	70/5982	Accessories
70/5717	Multiple	70/5987	Spare or mounted wheel or tire
70/5721	Externally mounted locking device	70/5991	Tire or rim only
70/5726	With padlock	70/5996	For seats
70/573	Single	70/60	Systems
70/5735	Externally mounted locking device	70/625	Operation and control
70/5739	With padlock	70/65	Central control
70/5743	Disconnectable	70/675	Serially operable
70/5748	Foldable	70/70	Operating mechanism
70/5752	Universal mounting	70/7006	Predetermined time interval controlled
70/5757	Handle, handwheel or knob	70/7011	Positively initiated delay interval
70/5761	Retractable or flush handle	70/7017	Interval terminating
70/5765	Rotary or swinging	70/7023	Repeating interval
70/577	Locked stationary	70/7028	Electric
70/5774	Externally mounted locking device	70/7034	Clockwork control
70/5779	With padlock	70/704	Continuously operating once initiated
70/5783	Combination lock	70/7045	Emergency release
70/5788	Push pin or button	70/7051	Using a powered device [e.g., motor]
70/5792	Handle-carried key lock	70/7057	Permanent magnet
70/5796	Coaxially mounted	70/7062	Electrical type [e.g., solenoid]
70/5801	Axially movable bolt	70/7068	Actuated after correct combination recognized [e.g., numerical, alphabetical, or magnet[s] pattern]
70/5805	Freely movable when locked		
70/581	Combination lock		

70/7073	. . . . .	Including use of a key	70/7395	. . . . .	Friction holder
70/7079	. . . . .	Key rotated [e.g., Eurocylinder]	70/7401	. . . . .	Spindles
70/7085	. . . . .	Using a dial having indicia or pointer and indicia	70/7407	. . . . .	Operating indicators
70/709	. . . . .	Plural interdependent or plural independently operable tumbler sets	70/7412	. . . . .	Portable combination setting guide
70/7096	. . . . .	With mechanism having rocker arm or linked bars	70/7418	. . . . .	Dials
70/7102	. . . . .	And details of blocking system [e.g., linkage, latch, pawl, spring]	70/7424	. . . . .	Tampering prevention or attach defeating
70/7107	. . . . .	And alternately mechanically actuated by a key, dial, etc.	70/7429	. . . . .	Resonance type
70/7113	. . . . .	Projected and retracted electrically	70/7435	. . . . .	Hidden or covered dial
70/7119	. . . . .	Projected electrically only	70/7441	. . . . .	Key
70/7124	. . . . .	Retracted electrically only	70/7446	. . . . .	Multiple keys
70/713	. . . . .	Dogging manual operator	70/7452	. . . . .	Selective shutout type
70/7136	. . . . .	Key initiated actuation of device	70/7458	. . . . .	Interdependent
70/7141	. . . . .	Combination and key	70/7463	. . . . .	Master- and change-key
70/7147	. . . . .	Combination or key	70/7469	. . . . .	Change-key shutout
70/7153	. . . . .	Combination	70/7475	. . . . .	Submaster- and change-key
70/7158	. . . . .	Individual blocking elements	70/748	. . . . .	Change-key shutout
70/7164	. . . . .	Selectively operable	70/7486	. . . . .	Single key
70/7169	. . . . .	Complex movement or puzzle type	70/7492	. . . . .	Tumblerless push or pull key
70/7175	. . . . .	Labyrinthian passage	70/7497	. . . . .	Tumblerless warded
70/7181	. . . . .	Tumbler type	70/7503	. . . . .	Tumbler and ward type
70/7186	. . . . .	Plural interdependent sets	70/7508	. . . . .	Tumbler type
70/7192	. . . . .	Plural independently operable sets	70/7514	. . . . .	Sliding and rotary or swinging tumblers
70/7198	. . . . .	Single tumbler set	70/752	. . . . .	Sliding tumblers
70/7203	. . . . .	With ball or roller	70/7525	. . . . .	Longitudinal
70/7209	. . . . .	Intersect sliding tumblers	70/7531	. . . . .	Transverse
70/7215	. . . . .	Individually set sliding tumblers	70/7537	. . . . .	Rotary or swinging tumblers
70/722	. . . . .	Manually operable	70/7542	. . . . .	Single set
70/7226	. . . . .	Associated movable operator	70/7548	. . . . .	Directly key engaged
70/7232	. . . . .	Removable	70/7554	. . . . .	Cylinder type with auxiliary tumblers or wards
70/7237	. . . . .	Rotary or swinging tumblers	70/7559	. . . . .	Cylinder type
70/7243	. . . . .	Intersect tumblers	70/7565	. . . . .	Plural tumbler sets
70/7249	. . . . .	Tumblers released	70/7571	. . . . .	Concentric tumblers
70/7254	. . . . .	Fence held spaced from tumblers	70/7576	. . . . .	Sliding and rotary plug
70/726	. . . . .	Individually set	70/7582	. . . . .	Sliding plug
70/7266	. . . . .	Movable selector	70/7588	. . . . .	Rotary plug
70/7271	. . . . .	Associated movable operator	70/7593	. . . . .	Sliding tumblers
70/7277	. . . . .	Removable	70/7599	. . . . .	Transverse of plug
70/7282	. . . . .	Pin or rod and slot	70/7605	. . . . .	Pin tumblers
70/7288	. . . . .	Spindle operator	70/761	. . . . .	Rotatable pins [e.g., MEDECO lock]
70/7294	. . . . .	Concentric spindles	70/7616	. . . . .	Including sidebar
70/7299	. . . . .	Axially shiftable spindle	70/7621	. . . . .	Including sidebar
70/7305	. . . . .	Manually operable	70/7627	. . . . .	Rotary or swinging tumblers
70/7311	. . . . .	Step-by-step	70/7633	. . . . .	Transverse of plug
70/7316	. . . . .	Combination upsetting	70/7638	. . . . .	Cylinder and plug assembly
70/7322	. . . . .	Permutation	70/7644	. . . . .	Key- and tool-controlled
70/7328	. . . . .	Compound tumblers	70/765	. . . . .	Key only controlled
70/7333	. . . . .	With fastener or holder	70/7655	. . . . .	Cylinder attaching or mounting means
70/7339	. . . . .	Pin and socket	70/7661	. . . . .	Detachable or removable cylinder
70/7345	. . . . .	Removable change element	70/7667	. . . . .	Operating elements, parts and adjuncts
70/735	. . . . .	Operating elements	70/7672	. . . . .	Cylinder
70/7356	. . . . .	Fences	70/7678	. . . . .	Adjustable
70/7362	. . . . .	Bolt or lock housing supported	70/7684	. . . . .	Plug
70/7367	. . . . .	Tumbler structure and position	70/7689	. . . . .	Tumblers
70/7373	. . . . .	Nested	70/7695	. . . . .	Plate
70/7379	. . . . .	Variant diameter	70/7701	. . . . .	Pin
70/7384	. . . . .	Mounts	70/7706	. . . . .	Operating connections
70/739	. . . . .	Motion-restraining means	70/7712	. . . . .	Rollbacks
			70/7718	. . . . .	Intermediate
			70/7723	. . . . .	Cylinder rings

70/7729	. . . Permutation	70/8351	. . . Operating attachments
70/7734	. . . . Automatically key set combinations	70/8378	. . . Knobs, hand grips, etc.
70/774	. . . . Adjustable tumblers	70/8405	. . . Combination finders
70/7746	. . . . . Removable change element	70/8432	. . For key-operated mechanism
70/7751	. . . With ball or roller	70/8459	. . . Housings
70/7757	. . . Push or pull key operation	70/8486	. . . . Cylindrical
70/7763	. . . Key ejecting	70/8514	. . . . Face plate
70/7768	. . . Key-removal preventing	70/8541	. . . . Mounting arrangements
70/7774	. . . False or picking key trapping	70/8568	. . . Escutcheons
70/778	. . . Operating elements	70/8595	. . . Key guides, internal
70/7785	. . . . Tumblers	70/8622	. . . Key insertion guides
70/7791	. . . . Keys	70/8649	. . . Keyhole covers
70/7797	. . . . . Picking	70/8676	. . . Key holders
70/7802	. . . . . Multi-part structures	70/8703	. . . . Flexible
70/7808	. . . . . With foldable shank or stem	70/873	. . . . One-piece
70/7814	. . . . . With extensible shank or stem	70/8757	. . . . Releasable catches
70/7819	. . . . . With slidable bit portion	70/8784	. . . . Parallel key loops, coaxially mounted, individually movable
70/7825	. . . . . With pivoted or swinging bit portion	70/8811	. . . Key identification
70/7831	. . . . . Nested second key	70/8838	. . Adjustment provisions
70/7836	. . . . . Plural shanks, stems or bit wings	70/8865	. . Reversible structures
70/7842	. . . . . Single shank or stem	70/8892	. . Silencers or mufflers
70/7847	. . . . . Round rigid	70/8919	. . Antifriction provisions
70/7853	. . . . . Tubular	70/8946	. . Emergency unlocking or release arrangements
70/7859	. . . . . Flat rigid	70/8973	. . Mounting aids, guides and assistors
70/7864	. . . . . Cylinder lock type		
70/787	. . . . . Irregular nonplanar or undulated		
70/7876	. . . . . Bow or head		
70/7881	. . . . . Bitting		
70/7887	. . . . . Frangible		
70/7893	. . . . . Permutation		
70/7898	. . . . . Threaded		
70/7904	. . . . . Magnetic features		
70/791	. . . . . Ejecting feature		
70/7915	. . . Tampering prevention or attack defeating		
70/7921	. . . . Armoring		
70/7927	. . . . Anti-jimmy		
70/7932	. . . . Anti-pick		
70/7938	. . . . . Guard ward		
70/7944	. . . . . Guard tumbler		
70/7949	. . . . Yielding or frangible connections		
70/7955	. . . . Keyhole guards		
70/796	. . . . . Portable		
70/7966	. . . . . Combination-controlled		
70/7972	. . . . . Portable		
70/7977	. . . . . Key-controlled		
70/7983	. . . . . Portable		
70/7989	. . . . Key securers, fasteners or retainers		
70/7994	. . . . . Portable		
70/80	. Parts, attachments, accessories and adjuncts		
70/8027	. . Condition indicators		
70/8054	. . . With recorder		
70/8081	. . . . Electric		
70/8108	. . . . Padlock		
70/8135	. . . With register		
70/8162	. . . . Padlock		
70/8189	. . . Contactual feeler		
70/8216	. . . Tampering detector		
70/8243	. . . . With seal		
70/827	. . . Attention-directing		
70/8297	. . For combination-operated mechanism		
70/8324	. . . Housings		

Former US Class 74 Series

74/00	Machine element or mechanism
74/10	. High frequency vibratory devices
74/11	. Tripping mechanism
74/111	. . Speed controlled
74/113	. . . Valve gear trips [e.g., steam engine "Corliss" type]
74/114	. . Retarded
74/115	. . . Plural, sequential, trip actuations
74/116	. . . Clock train
74/118	. . . . Winding knob trip [e.g., alarm mechanism]
74/119	. . Hit and miss
74/12	. Gyroscopes
74/1204	. . with caging or parking means
74/1207	. . . Rotor spin and cage release type
74/1211	. . . and resetting means
74/1214	. . with gimbal lock preventing means
74/1218	. . Combined
74/1221	. . Multiple gyroscopes
74/1225	. . . with rotor drives
74/1229	. . Gyroscope control
74/1232	. . . Erecting
74/1236	. . . . by plural diverse forces
74/1239	. . . . by jet
74/1243	. . . . by weight
74/1246	. . . . by friction
74/125	. . . . by magnetic field
74/1254	. . . . by motor torque
74/1257	. . . Damping
74/1261	. . with pick off
74/1264	. . . Optical
74/1268	. . . Pneumatic
74/1271	. . . Conducting liquid
74/1275	. . . Electrical
74/1279	. . . Electrical and magnetic

74/1282	. . with rotor drive	74/1544	. . . . Multiple acting
74/1286	. . Vertical gyroscopes	74/1545	. . . . . Spring or weight return
74/1289	. . Horizontal gyroscopes	74/1547	. . . . . Single acting
74/1293	. . Flexure hinges for gyros	74/1548	. . . . . Engine starter type
74/1296	. . Flywheel structure	74/155	. . . . . Spring or weight return
74/13	. Machine starters	74/1552	. . . . . Spring or weight return
74/131	. . Automatic	74/1553	. . . . . Lever actuator
74/132	. . . Separate power mesher	74/1555	. . . . . Rotary driven element
74/133	. . . Holders	74/1556	. . . . . Multiple acting
74/134	. . . Clutch connection	74/1558	. . . . . Grip units and features
74/136	. . . Worm and wheel	74/156	. . . . . Compound movement handle
74/137	. . . Reduction gearing	74/1561	. . . . . Reversible
74/138	. . Radial meshing	74/1563	. . . . . Transverse pivots
74/139	. . Cam operated	74/1565	. . . . . Gripper releasing devices
74/14	. Rotary member or shaft indexing, e.g., tool or work turret	74/1566	. . . . . Power pawl lifter
74/1406	. . with safety device or drive disconnect	74/1568	. . . . . Automatic
74/1412	. . with locating point adjusting	74/1569	. . . . . Idle stroke
74/1418	. . Preselected indexed position	74/1571	. . . . . Cooperating holding pawl
74/1424	. . . Sequential	74/1573	. . . . . Power stroke
74/1429	. . . . Skip position	74/1574	. . . . . Cooperating holding pawl
74/1435	. . . . Held by torque	74/1576	. . . . . Holding pawl lifter
74/1441	. . . . Geneva or mutilated gear drive	74/1577	. . . . . Gripper mountings, lever
74/1447	. . . . Velocity control	74/1579	. . . . . Reversible
74/1453	. . . . Interlocked rotator and brake	74/1581	. . . . . Multiple acting
74/1459	. . . . . Diverse-type brakes	74/1582	. . . . . Single ratchet or clutch
74/1465	. . . . . with axially acting friction brake	74/1584	. . . . . Gripper mountings, slide
74/1471	. . Plural operators or input drives	74/1585	. . . . . Multiple acting
74/1476	. . with means to axially shift shaft	74/1587	. . . . . Grip features
74/1482	. . Single revolution input effects desired fractional output	74/1589	. . . . . Driving band
74/1488	. . Control means	74/159	. . . . . Clamping
74/1494	. . Locking means	74/1592	. . . . . Driven band and gripper
74/15	. Intermittent grip type mechanical movement	74/1594	. . . . . Positive grip
74/1502	. . Escapement	74/1595	. . . . . Driving ratchet-bar or rack
74/1503	. . Rotary to intermittent unidirectional motion	74/1597	. . . . . Multiple acting
74/1505	. . . Automatically controlled	74/1598	. . . . . Driven ratchet-bar and power dog
74/1506	. . . . Speed	74/16	. . Alternating-motion driven device with means during operation to adjust stroke
74/1508	. . . Rotary crank or eccentric drive	74/1608	. . Constant length stroke with means to displace end limits
74/151	. . . . Adjustable	74/1616	. . . Cyclical displacement responsive to the alternating-motion
74/1511	. . . . Lever transmitter	74/1625	. . Stroke adjustable to zero and/or reversible in phasing
74/1513	. . . . . Adjustable leverage	74/1633	. . . Plural driving means to jointly drive the driven device
74/1515	. . . . . Rack and pinion transmitter	74/1642	. . . Device driven from selected points on oscillating link
74/1516	. . . . . Adjustable throw	74/165	. . . Driving lever with adjustable pivot point
74/1518	. . . . . Rotary cam drive	74/1658	. . . Eccentric and strap drive, shiftable eccentric
74/1519	. . . . . Adjustable throw	74/1667	. . . . . Changing the extent of eccentricity
74/1521	. . . . . Radial cam	74/1675	. . . Crank pin drive, shiftable pin
74/1523	. . . . . Radial cam	74/1683	. . . Cam and follower drive
74/1524	. . . Intermittently engaged clutch	74/1692	. . . . . Axial-type cam [e.g., wobbler type]
74/1526	. . Oscillation or reciprocation to intermittent unidirectional motion	74/17	. . Rotary driven device adjustable during operation relative to its supporting structure
74/1527	. . . Screw and nut devices	74/173	. . Screw and nut adjusting means
74/1529	. . . Slide actuator	74/177	. . Rack and pinion adjusting means
74/1531	. . . . Multiple acting	74/18	. Mechanical movements
74/1532	. . . . Rack actuator	74/18008	. . Oscillating to reciprocating and alternating rotary
74/1534	. . . . . Multiple acting	74/18016	. . Oscillating to reciprocating and intermittent rotary
74/1535	. . . . . Inwardly facing racks	74/18024	. . Rotary to reciprocating and rotary
74/1537	. . . . . Oscillating		
74/1539	. . . . . Multiple acting		
74/154	. . . . . Inwardly facing racks		
74/1542	. . . Strap actuator		

74/18032 . . . Rotary to reciprocating or rotary	74/1852 . . . Associated inertia devices
74/1804 . . Rotary to reciprocating and alternating rotary	74/18528 . . Rotary to intermittent unidirectional motion
74/18048 . . Rotary to reciprocating and intermittent rotary	74/18536 . . . Space machines
74/18056 . . Rotary to or from reciprocating or oscillating	74/18544 . . Rotary to gyratory
74/18064 . . . Head motions	74/18552 . . . Unbalanced weight
74/18072 . . . Reciprocating carriage motions	74/1856 . . Reciprocating or oscillating to intermittent unidirectional motion
74/1808 Phonograph type	74/18568 . . Reciprocating or oscillating to or from alternating rotary
74/18088 . . . Rack and pinion type	74/18576 . . . including screw and nut
74/18096 Shifting rack	74/18584 Shaft shorter than nut
74/18104 Shiftable pinion	74/18592 Auxiliary drive [e.g., fluid piston, etc.] for load
74/18112 Segmental pinion	74/186 Alternate power path operable on failure of primary
74/1812 Alternately rotated pinion	74/18608 Single input split into two intermediate outputs that are subsequently superposed into a single output
74/18128 Clutchable gears	74/18616 Single input, plural outputs
74/18136 Bevel	74/18624 Plural inputs, single output
74/18144 . . . Overcoming dead center	74/18632 Plural nuts driving shaft
74/18152 . . . Belt or chain carried member	74/1864 Shaft and nut driven
74/1816 . . . Crank, lever, toggle, and slide	74/18648 Carriage surrounding, guided by, and primarily supported by member other than screw [e.g., linear guide, etc.]
74/18168 . . . Crank, lazy-tong, and slide	74/18656 Carriage surrounded, guided, and primarily supported by member other than screw [e.g., linear guide, etc.]
74/18176 . . . Crank, pitman, lever, and slide	74/18664 Shaft moves through rotary drive means
74/18182 Pump jack type	74/18672 Plural screws in series [e.g., telescoping, etc.]
74/18184 . . . Crank, pitman, and lever	74/1868 Deflection related
74/182 Multiple levers	74/18688 Limit stop
74/18208 . . . Crank, pitman, and slide	74/18696 including means to selectively transmit power [e.g., clutch, etc.]
74/18216 . . . Crank, lever, and slide	74/18704 Means to selectively lock or retard screw or nut
74/18224 Rack connections	74/18712 Contamination related
74/18232 . . . Crank and lever	74/1872 Imperforate enclosure
74/1824 Slidable connections	74/18728 Backlash
74/18248 . . . Crank and slide	74/18736 Pressurized fluid introduced between nut and screw
74/18256 Slidable connections [e.g., scotch yoke]	74/18744 Lubrication
74/18264 . . . Crank and multiple pitmans	74/18752 Manually driven
74/18272 . . . Planetary gearing and slide	74/1876 . . . including inertia device
74/1828 . . . Cam, lever, and slide	74/18768 with rack and pinion
74/18288 . . . Cam and lever	74/18776 Rectilinear rack
74/18296 . . . Cam and slide	74/18784 . . . including bevel gears
74/18304 Axial cam	74/18792 . . . including worm
74/18312 Grooved	74/188 . . . including spur gear
74/1832 Multiple screw	74/18808 with rack
74/18328 Alternately rotated screw	74/18816 Curvilinear rack
74/18336 Wabblers type	74/18824 with biasing means
74/18344 . . . Unbalanced weights	74/18832 . . . including flexible drive connector [e.g., belt, chain, strand, etc.]
74/18352 . . . Trammel-pitman	74/1884 with sprocket wheel
74/1836 . . Rotary to rotary	74/18848 with pulley
74/18368 . . . Inertia or centrifugal transmitters	74/18856 . . Oscillating to oscillating
74/18376 . . . Crank, pitman, lever, and crank	74/18864 . . . Snap action
74/18384 . . . Crank, lever, and crank	74/18872 Plate spring
74/18392 . . . Crank, pitman, and crank	74/1888 . . . Geared connections
74/184 . . . Cranks, link connected	74/18888 . . Reciprocating to or from oscillating
74/18408 . . . Cranks, slidable connections	74/18896 . . . Snap action
74/18416 . . Rotary to alternating rotary	
74/18424 . . . Mangle connections	
74/18432 Shiftable driven gear	
74/1844 Central teeth	
74/18448 Mutilated gearing connections	
74/18456 . . . Crank, pitman, and lever	
74/18464 . . . Reciprocating rack connections	
74/18472 Crank and pitman actuator	
74/1848 Simple crank actuator	
74/18488 . . . Oscillating rack connections	
74/18496 Mangle actuated	
74/18504 Crank and pitman actuator	
74/18512 . . . Flexible connector type	

74/18904	Plate spring	74/19205	Clutchable gears
74/18912	Compound lever and slide	74/1921	On single driven member
74/1892	Lever and slide	74/19214	On single driving member
74/18928	Straight line motions	74/19219	Interchangeably locked
74/18936	Slidable connections	74/19223	Disconnectable counter shaft
74/18944	Link connections	74/19228	Multiple concentric clutch shafts
74/18952	toggle transmissions	74/19233	Plurality of counter shafts
74/1896	Cam connections	74/19237	Internal-external gears
74/18968	Flexible connections	74/19242	Combined gear and clutch
74/18976	Rack and pinion	74/19247	Preselector
74/18984	Inclined ramp	74/19251	Control mechanism
74/18992	Reciprocating to reciprocating	74/19256	Automatic
74/19	Gearing	74/1926	Speed responsive
74/19005	Nonplanetary gearing differential type [e.g., gearless differentials]	74/19265	Governor
74/19009	Single gearing unit includes fluid drive	74/1927	with belt gearing
74/19014	Plural prime movers selectively coupled to common output	74/19274	torque responsive
74/19019	Plural power paths from prime mover	74/19279	Cam operated
74/19023	Plural power paths to and/or from gearing	74/19284	Meshing assisters
74/19028	Alternate input connections single hand crank	74/19288	Double clutch and interposed transmission
74/19033	Fluid drive divides or combines alternate paths	74/19293	Longitudinally slidable
74/19037	One path includes fluid drive	74/19298	Multiple spur gears
74/19042	Friction-type gearing	74/19302	with tumbler gear
74/19047	Worm-type gearing	74/19307	Selective
74/19051	Single driven plural drives	74/19312	Direct clutch and drive
74/19056	Parallel	74/19316	Progressive
74/1906	Nonparallel	74/19321	Direct clutch and drive
74/19065	Aligned	74/19326	Fluid operated
74/1907	Parallel and aligned	74/1933	Multiple bevel gears
74/19074	Single drive plural driven	74/19335	Single spur gear
74/19079	Parallel	74/1934	Tumbler and cone
74/19084	Spur	74/19344	Multiple cone
74/19088	Bevel	74/19349	Single bevel gear
74/19093	Spur and bevel	74/19353	Pin or crown gears
74/19098	Helical	74/19358	Laterally slidable gears
74/19102	Belt or chain	74/19363	Rotary carriage
74/19107	Nonparallel	74/19367	Swinging carriage
74/19112	Aligned	74/19372	Single forward and reverse speeds
74/19116	Vehicle	74/19377	Slidable keys or clutches
74/19121	Concentric	74/19381	Alternative clutch shaft
74/19126	Plural drivers plural driven	74/19386	Multiple clutch shafts
74/1913	Bevel	74/19391	Progressive
74/19135	Spur	74/19395	Keys simultaneously slidable
74/1914	Alternate drivers and driven	74/194	Selective
74/19144	Miscellaneous [plural power paths]	74/19405	Multiple forward and reverse
74/19149	with fluid drive	74/19409	Single forward and reverse
74/19153	Condition responsive control	74/19414	Single clutch shaft
74/19158	with one or more controllers for gearing, fluid drive, or clutch	74/19419	Progressive
74/19163	with interrelated controls	74/19423	Multiple key
74/19167	In series plural interchangeably locked nonplanetary units	74/19428	Spur
74/19172	Reversal of direction of power flow changes power transmission to alternate path	74/19433	Fluid operated
74/19177	Input and output exchange functions	74/19437	Electrically operated
74/19181	toothed gear and recirculated unconnected elements	74/19442	Single key
74/19186	Alternating rotary or continuous	74/19447	Clutch and ratchet
74/19191	Alternating rotary	74/19451	Spur gears
74/19195	Progressive	74/19456	Intermediate clutch
74/192	Shiftable and/or slidable gears	74/1946	Sliding clutch carrier
		74/19465	Sliding clutch operator
		74/1947	Selective
		74/19474	Multiple key
		74/19479	Spur gears
		74/19484	Single speed forward and reverse

74/19488	Spur gears	74/19767	Return path geometry
74/19493	Bevel gears	74/19772	Rolling element deflector
74/19498	Bevel and idler gears	74/19777	Interconnected or cooperating rollers or roller structure
74/19502 . . .	Pivotally supported	74/19781	Non-recirculating rolling elements
74/19507 . . .	Windmill turntable	74/19786	Captured sphere
74/19512 . . .	Screw	74/19791	Cylindrical or quasi-cylindrical roller element [e.g., inclined roller, etc.]
74/19516 . . .	Spur	74/19795	Parallel to shaft
74/19521 . . .	Bevel	74/198	Perpendicular to shaft
74/19526	Wheel type	74/19805	Less than 360 degrees of contact between nut and screw
74/1953	Wringer type	74/19809	Independent nut segments
74/19535 . . .	Follow-up mechanism	74/19814	Integral deformable tangs engaging screw
74/1954 . . .	Eccentric driving shaft and axle	74/19819	Driven rack or shaft
74/19545 . . .	Central driving shaft in axle	74/19823	Screw
74/1955 . . .	Parallel shafts, adjustable gear mesh	74/19828	Worm
74/19555 . . .	Varying speed ratio	74/19833	Variable speed
74/1956 . . .	Adjustable	74/19837	Intermittent motion
74/19565 . . .	Relative movable axes	74/19842	Distribution of pressure
74/1957	Parallel shafts	74/19847	torque actuated safety devices
74/19575	Automatic control	74/19851 . . .	Gear and rotary bodies
74/1958	Parallel shafts	74/19856	Laterally-spaced wheels
74/19585 . . .	Fixed axes	74/1986	Radially-spaced wheels
74/1959	Parallel shafts	74/19865	with flywheel
74/19595	Automatic control	74/1987 . . .	Rotary bodies
74/196	Parallel shafts	74/19874	Mutilated
74/19605 . . .	Reversing means	74/19879	Geneva
74/19609	Governor control	74/19884	Irregular teeth and bodies
74/19614 . . .	Disconnecting means	74/19888	External and internal teeth
74/19619 . . .	Displaceable elements	74/19893	Sectional
74/19623 . . .	Backlash take-up	74/19898	Backlash take-up
74/19628 . . .	Pressure distributing	74/19902	Screw and nut
74/19633 . . .	Yieldability in gear trains	74/19907	Sound deadening
74/19637 . . .	with brake means for gearing	74/19912	Differential disks
74/19642 . . .	Directly cooperating gears	74/19916	Multiple disks
74/19647	Parallel axes or shafts	74/19921	Separate rim
74/19651	External type	74/19926	Detachable
74/19656	Pin teeth	74/1993	Segmental rim
74/1966	Intersecting axes	74/19935	Sheet metal
74/19665	Bevel gear type	74/1994	Diametrically split
74/1967	Rack and pinion	74/19944	Shaft-admitting insert
74/19674	Spur and bevel	74/19949 . . .	Teeth
74/19679	Spur	74/19953	Worm and helical
74/19684	Motor and gearing	74/19958	Bevel
74/19688	Bevel	74/19963	Spur
74/19693	Motor vehicle drive	74/19967	Yieldable
74/19698	Spiral	74/19972	form
74/19702	Screw and nut	74/19977	Antifriction
74/19707	Plural longitudinally variably spaced nuts	74/19981	Roller
74/19712	Threadless	74/19986	Twisted
74/19716	Non-linear screw	74/19991 . . .	Lubrication
74/19721	Thread geometry	74/19995	Teeth
74/19726	Thread pitch varies over axial length	74/20	Control lever and linkage systems
74/1973	Shaft thread is spirally wound wire	74/20006 . . .	Resilient connections
74/19735	Nut disengageable from screw	74/20012 . . .	Multiple controlled elements
74/1974	Nut segments hinged parallel to shaft [e.g., clam shell-type, etc.]	74/20018	Transmission control
74/19744	Rolling element engaging thread	74/20024	Fluid actuator
74/19749	Recirculating rolling elements	74/2003	Electrical actuator
74/19753	Plural independent recirculating element paths	74/20037	Occupant propelled vehicle
74/19758	Single thread common to plural paths	74/20043	Transmission controlled by flexible cable
74/19763	Roller return path in shaft		

74/20049	Transmission controlled by flexible cable	74/20354	Planar surface with orthogonal movement only
74/20055	Foot operated	74/2036	Pair of power elements
74/20061	Multiple foot-operated controls	74/20366	Power and manual controlling elements
74/20067	Control convertible between automatic and manual operation	74/20372	Manual controlling elements
74/20073	Control of plural mechanisms [e.g., control of transmission and control of 4 - wheel drive]	74/20378	Planar surface with orthogonal movement or rotation
74/20079	Separate control levers	74/20384	Lever
74/20085	Restriction of shift, gear selection, or gear engagement	74/2039	Pair of levers
74/20091	Prevention of reverse shift	74/20396	Hand operated
74/20098	Separate actuator to disengage restrictor	74/20402	Flexible transmitter [e.g., Bowden cable]
74/20104	Shift element interlock	74/20408	Constant tension sustaining
74/2011	with detent, recess, notch, or groove	74/20414	Hydraulic control
74/20116	Resiliently biased interlock	74/2042	and hand operator
74/20122	Spherical restrictor	74/20426	Slidable
74/20128	Resiliently biased restrictor	74/20432	for moving a mirror
74/20134	having vibration damper	74/20438	Single rotatable lever [e.g., for bicycle brake or derailleur]
74/2014	Manually operated selector [e.g., remotely controlled device, lever, push button, rotary dial, etc.]	74/20444	including rolling antifriction elements
74/20146	Control lever on steering column	74/2045	and sheath support, connector, or anchor
74/20152	Control lever movable through plural planes	74/20456	Specific cable or sheath structure
74/20159	Control lever movable through plural planes	74/20462	Specific cable connector or guide
74/20165	Spherical mount [e.g., ball and socket]	74/20468	Sliding rod
74/20171	Resiliently biased control lever	74/20474	Rotatable rod, shaft, or post
74/20177	Particular element [e.g., shift fork, template, etc.]	74/2048	Gear, drum, and cable
74/20183	Shift fork structure	74/20486	Drum and cable
74/20189	Foot operated	74/20492	Gear
74/20195	Offset extension	74/20498	Variable ratio
74/20201	Control moves in two planes	74/20504	Screw and nut
74/20207	Multiple controlling elements for single controlled element	74/2051	Adjustable
74/20213	Interconnected	74/20516	Mountings
74/2022	Hand and foot	74/20522	Antenna
74/20226	Accelerator	74/20528	Foot operated
74/20232	Marine	74/20534	Accelerator
74/20238	Interlocked	74/2054	Signal
74/20244	Push button	74/20546	Knee operated
74/2025	Rod blocks actuation of rotary member	74/20552	Elbow
74/20256	Steering and controls assemblies	74/20558	Variable output force
74/20262	Rotary control shaft	74/20564	Flexible
74/20268	Reciprocating control elements	74/2057	Variable input leverage
74/20274	Flexible	74/20576	Elements
74/2028	Handle bar type	74/20582	Lever
74/20287	Flexible control element	74/20588	toggle
74/20293	with horn control	74/20594	Lazy tongs
74/20299	Antirattling elements	74/206	Adjustable
74/20305	Robotic arm	74/20606	Swing posts
74/20311	including power cable or connector	74/20612	Hand
74/20317	including electric motor	74/20618	Jointed
74/20323	including flaccid drive element	74/20624	Adjustable
74/20329	Joint between elements	74/2063	Stops
74/20335	Wrist	74/20636	Detents
74/20341	Power elements as controlling elements	74/20642	Hand crank
74/20348	Planar surface with orthogonal movement and rotation	74/20648	Interrelated lever release
		74/20654	Gear
		74/2066	Friction
		74/20666	Lever engaging
		74/20672	Lever engaging rack
		74/20678	Pivoted
		74/20684	Lever carried pawl
		74/2069	Handle release
		74/20696	Finger lever release

74/20702	Slidable	74/2123	and pressure compensation
74/20708	Pedal controlled	74/2125	and elastic device
74/20714	Lever carried rack	74/2126	and bearings
74/2072	Pivoted	74/2127	with electrical or magnetic damping
74/20726	Pedal controlled	74/2128	Damping using swinging masses, e.g., pendulum type, etc.
74/20732	Handles	74/213	Damping by increasing frictional force
74/20738	Extension	74/2131	Damping by absorbing vibration force [via rubber, elastomeric material, etc.]
74/20744	Hand crank	74/2132	Structural detail, e.g., fiber, held by magnet, etc.
74/2075	Extensible	74/2133	Pawls and ratchets
74/20756	Collapsible	74/2135	Noiseless
74/20762	Shaft connections	74/2136	Pivoted pawls
74/20768	Engine starter type	74/2137	Single tooth
74/20774	Holdings	74/2138	Flexible single tooth
74/2078	Handle bars	74/214	Multiple tooth
74/20786	Spring biased or supported	74/2141	Sliding pawls
74/20792	Folding or adjustable	74/2142	Pitmans and connecting rods
74/20798	Sectional	74/2143	Radial
74/20804	Simultaneously movable	74/2144	Yieldable
74/2081	Continuous	74/2146	Longitudinal springs
74/20816	with handle latch	74/2147	Fluid cushion
74/20822	Attachments and accessories	74/2148	Automatic release
74/20828	Handholds and grips	74/2149	toggle link type
74/20834	Hand wheels	74/2151	Longitudinally adjustable
74/2084	Knob or dial	74/2152	Hollow rod, lubricated
74/20846	Slidable	74/2153	Sheet metal type
74/20852	Pivoted	74/2154	Counterbalanced
74/20858	Releasable	74/2156	Weight type
74/20864	Handles	74/2157	Rotating
74/2087	Rim grips and covers	74/2158	Spring
74/20876	Caps and covers	74/2159	Section coupled
74/20882	Rocker arms	74/216	Bearings, adjustable
74/20888	Pedals	74/2162	Engine type
74/20894	Treadles	74/2163	Idler arm
74/209	Extension	74/2164	Cranks and pedals
74/20906	Offset	74/2165	with attached gear
74/20912	Pads and covers	74/2167	Variable
74/20918	Foot rests	74/2168	Pedals
74/20924	Controller checks	74/2169	Counterbalanced
74/2093	Slot closers and lever guards	74/217	with toe or shoe clips
74/21	Elements	74/2172	Adjustable or folding
74/2101	Cams	74/2173	Cranks and wrist pins
74/2102	Adjustable	74/2174	Multiple throw
74/2104	Flexible strip	74/2175	Sectional
74/2105	Memory devices	74/2177	Sectional
74/2106	Timer devices	74/2178	Yieldable
74/2107	Follower	74/2179	Adjustable
74/2109	Balancing for drum, e.g., washing machine or arm-type structure, etc., centrifuge, etc.	74/218	Automatically
74/211	Eccentric	74/2181	Variable
74/2111	Plural, movable relative to each other [including ball[s]]	74/2183	Counterbalanced
74/2112	Concentric	74/2184	Vibration dampers
74/2114	Adjustable	74/2185	Lubricated
74/2115	Radially	74/2186	Gear casings
74/2116	having anti-friction means, e.g., roller bearing, lubrication, etc.	74/2188	Axle and torque tubes
74/2117	Power generating-type flywheel	74/2189	Cooling
74/2119	Structural detail, e.g., material, configuration, superconductor, discs, laminated, etc.	74/219	Guards
74/212	Containing fiber or filament	74/2191	for rotary member
74/2121	Flywheel, motion smoothing-type	74/2193	Guard mechanisms
74/2122	with fluid balancing means	74/2194	Automatic

74/2195 Oscillating member actuator
 74/2196 Reciprocating member actuator
 74/2198 . . . Operator controlled
 74/2199 . . . Set screw
 74/22 . Miscellaneous

82/16442 . . . with means to circumrotate tool[s] about work
 82/16459 Fluid means for relative tool actuation
 82/16475 Gear means for tool actuation
 82/16491 including axial cam
 82/16508 with indicator

Former US Class 82 Series**82/00 Turning**

82/10 . Process of turning
 82/11 . Talking machine tablet
 82/12 . Radially moving rotating tool inside bore
 82/122 . . Forming non-circular bore
 82/125 . . Tool simultaneously moving axially
 82/128 . . . Pivoted to tool-carrier
 82/13 . Pattern section
 82/135 . . Cam-controlled cutter
 82/14 . Axial pattern
 82/141 . . having transverse tool and templet guide
 82/142 . . . with workpiece gauge
 82/143 . . . having electrical actuator
 82/145 And hydraulic actuator
 82/147 . . . having hydraulic actuator
 82/148 . . Pivoted tool rest
 82/149 . . Profiled cutter
 82/15 . Tapers
 82/152 . . Offset work axis
 82/154 . . Transversely shifted cutter
 82/156 . . . Templet controlled
 82/158 . . . Gear controlled
 82/16 . Severing or cut-off
 82/16016 . . Processes
 82/16032 . . Automatic and/or triggered control
 82/16049 . . Combined with means to sharpen tool[s]
 82/16065 . . Combined with means to apply fluid
 82/16081 . . Combined with means to heat tool and/or work
 82/16098 . . with dust or chip handling
 82/16114 . . including scrap cutting means
 82/16131 . . Flying cutter type
 82/16147 . . Cutting couple straddling work
 82/16163 . . . with pattern, guide or cam means [noncircular product]
 82/16181 . . . Plural cutting means [pairs, or pair, plus single]
 82/16196 . . . Rotary shear pair
 82/16213 Tool axes parallel to axis of work rotation
 82/16229 . . Interrelated means for tool infeed and circumrotation
 82/16245 . . . Dependent upon reaction to work
 82/16262 . . . Infeed cam disk rotation geared to tool holder rotation
 82/16278 Axial infeed cam
 82/16295 including centrifugal balancing means
 82/16311 Scroll plate infeed cam
 82/16327 . . . Infeed cam plate braked with respect to tool[s] carrier plate
 82/16344 . . . Orbital cogwheel and fixed detent
 82/16361 . . . Common gear means
 82/16377 including adjustable means to vary gear speed
 82/16393 with manual disconnect lever
 82/16409 . . . with means to feed work
 82/16426 . . Infeed means

82/16524 Bell crank linkage for tool[s] holder
 82/16541 Resilient means for tool actuation
 82/16557 with means for manual retraction
 82/16573 . . . Hand crank for tool holder
 82/16591 . . . Power driven eccentric
 82/16606 Fluid motor
 82/16622 Plural tools
 82/16639 . . . Tool within work
 82/16655 . . . with means to rotate tool[s]
 82/16672 including rotatable cutters supporting work
 82/16688 Planetating work mandrels
 82/16704 Pivoted tool carriage
 82/16721 with adjustable work stops
 82/16737 Eccentric periphery rotary tool
 82/16754 Means to feed work axially
 82/16771 Translatable work support carriage
 82/16786 with tool groove in support roll[s]
 82/16803 . . . Rotatable tool[s] driven by contact with work
 82/16819 Axially movable tool support
 82/16836 Freely floating parallel to axis
 82/16852 with supplemental nonrotative tool
 82/16868 including clutch control for work rotation
 82/16885 including resilient means urging work against rotary support
 82/16901 . . . Separate means for plural tools
 82/16918 . . . Spring urged
 82/16934 For window shade
 82/16951 . . . Tool adjustment and/or stop
 82/16967 . . . with means to support and/or rotate work
 82/16983 . . . with means to feed work
 82/17 . Lathe for pulley
 82/18 . Lathe for wheel or axle
 82/185 . . In situ lathe for railroad wheel
 82/19 . Lathe for crank or crank pin
 82/192 . . Portable lathe for crank pin
 82/195 . . having work oscillator
 82/198 . . . having work driver
 82/20 . Lathe for screw cutting
 82/205 . . having swinging feed nut and tool bar
 82/21 . Portable lathe for brake drum, disc, or shoe
 82/22 . Portable lathe for pipe turning
 82/23 . Portable lathe for piston grooving
 82/24 . Bench lathe
 82/245 . . Watchmaker's lathe
 82/25 . Lathe
 82/2502 . . with program control
 82/2504 . . . And transmission
 82/2506 . . . And tool turret
 82/2508 . . with tool turret
 82/2511 . . Vertical
 82/2512 . . having facing tool fed transverse to work
 82/2514 . . with work feeder or remover
 82/2516 . . . Magazine type
 82/2518 Bar feeder
 82/2521 . . . Bar feeder
 82/2522 . . Portable

82/2524	. . Multiple	83/0289	. . . . Plural independent rotary blades
82/2527	. . having hollow cutter head	83/0296	. . . With infeeding of work
82/2529	. . Revolvable cutter heads	83/0304	. . Grooving
82/2531	. . Carriage feed	83/0311	. . . By use of plural independent rotary blades
82/2533	. . . Control	83/0319	. . . . Forming common groove
82/2535	. . . . Electrical type	83/0326	. . . . Blades turning about perpendicular axes
82/2537	. . . Apron mechanism	83/0333	. . Scoring
82/2539	. . . . Feednut control	83/0341	. . . Processes
82/2541	. . . Slide rest	83/0348	. . . Active means to control depth of score
82/2543	. . . . Multiple tool support	83/0356	. . . Serially
82/2545	. . . . Tool relief	83/0363	. . . Plural independent scoring blades
82/2547	. . . Change gears	83/037	. . . . Rotary scoring blades
82/2549	. . . Feedscrews and rods	83/0378	. . . . . On opposite sides of work
82/2552	. . Headstock	83/0385	. . . Rotary scoring blade
82/2554	. . . Speed changing gear	83/0393	. . . . With means to rotate blade
82/2556	. . . . Speed change gears for maintaining constant cutting speed	83/04	. Processes
82/2558	. . . Spindle reverser	83/0405	. . With preparatory or simultaneous ancillary treatment of work
82/2561	. . . Spindle or work angler	83/041	. . . By heating or cooling
82/2562	. . . Spindle and bearings	83/0414	. . . . At localized area [e.g., line of separation]
82/2564	. . Tailstock	83/0419	. . . By distorting within elastic limit
82/2566	. . Bed	83/0424	. . . . By stretching
82/2568	. . Center	83/0429	. . . . By compressing
82/2571	. . . Alignment adjuster	83/0433	. . . . By flexing around or by tool
82/2572	. . Attachment	83/0438	. . . . . To conform to shape of tool
82/2574	. . . Stop [e.g., carriage, tool, work, etc.]	83/0443	. . . By fluid application
82/2577	. . . . Tool slide	83/0448	. . With subsequent handling [i.e., of product]
82/2579	. . . . Collet or spindle	83/0453	. . . By fluid application
82/2581	. . . . Indexible [e.g., roll type, etc.]	83/0457	. . . By retaining or reinserting product in workpiece
82/2583	. . Tool and work rest	83/0462	. . . By accelerating travel
82/2585	. . Tool rest	83/0467	. . . By separating products from each other
82/2587	. . . Turret type holder [e.g., multiple tools, etc.]	83/0472	. . . By moving work support to which a tacky product is adhered
82/2589	. . . Quick release tool or holder clamp	83/0476	. . Including stacking of plural workpieces
82/2591	. . . Tool post	83/0481	. . Puncturing
82/2593	. . Work rest	83/0486	. . With manipulation of tool protective strip [e.g., backing strip]
82/2595	. . . with noise or vibration dampener	83/0491	. . Cutting of interdigitating products
82/2597	. . . Center rest	83/0495	. . Making and using a registration cut
82/26	. Work driver	83/05	. . With reorientation of tool between cuts
82/262	. . Lathe dog	83/0505	. . With reorientation of work between cuts
82/264	. . . Cam grip	83/051	. . . Relative to same tool
82/266	. . Mandrel	83/0515	. . During movement of work past flying cutter
82/268	. . . Expansible	83/0519	. . . Cyclically varying rate of tool or work movement
82/27	. Centerer	83/0524	. . Plural cutting steps
82/28	. Drill press attachment for turning	83/0529	. . . Blanking and cutting
82/29	. Attachment for cutting a valve	83/0534	. . . . Cutting to join blanked holes
82/30	. Miscellaneous	83/0538	. . . Repetitive transverse severing from leading edge of work

Former US Class 83 series

83/00	Cutting		
83/02	. Other than completely through work thickness	83/0543	. . . . Alternately forming products of less than total width of work
83/0207	. . or through work presented	83/0548	. . . . With longitudinal severing
83/0215	. . . Including use of rotary scoring blade	83/0553	. . . . . Effected by plural steps
83/0222	. . . . Plural independent rotary scoring blades	83/0558	. . . . . Along zigzag or undulant line or cut
83/023	. . . With infeeding of work	83/0562	. . . . . Prior to transverse severing
83/0237	. . Pricking	83/0567	. . . . . Nonrectilinear cutting
83/0244	. . . Including use of orbiting tool carrier	83/0572	. . . Plural cutting steps effect progressive cut
83/0252	. . . With infeeding of tool	83/0577	. . . Repetitive blanking
83/0259	. . Edge trimming [e.g., chamfering, etc.]	83/0581	. . Cutting part way through from opposite sides of work
83/0267	. . Splitting		
83/0274	. . . By use of endless band or chain knife		
83/0281	. . . By use of rotary blade		

83/0586	. . Effecting diverse or sequential cuts in same cutting step	83/2046	. . . . Including means to move stack bodily
83/0591	. . Cutting by direct application of fluent pressure to work	83/2048	. . . . . By movement of stack holder
83/0596	. . Cutting wall of hollow work	83/205	. . . . . . By timed relocation of holder along path of stack gscheme-change-itemth
83/06	. . Blanking	83/2053	. . . . . . . Interrelated adjustment of holder movement and work-feeder
83/0605	. . Cut advances across work surface	83/2055	. . . . . And means to resist stack movement
83/061	. With manually actuated means to disturb cyclic operation	83/2057	. . . . . Including means to deliver individual pieces to a stack holder
83/081	. With randomly actuated stopping means	83/2059	. . . . . With spindle to enter a hole or to make hole in product
83/083	. . With means to permit subsequent hand operation	83/2061	. . . . . By face-engaging means to push product broadside into stacked relation
83/084	. . With stop-signal-responsive means to actuate auxiliary cutter	83/2063	. . . . . Upon emergence from hollow cutter
83/086	. . With sensing of product or product handling means	83/2066	. . By fluid current
83/088	. . Responsive to tool detector or work-feed-means detector	83/2068	. . . Plural blasts directed against plural product pieces
83/089	. . . Responsive to tool characteristic	83/207	. . . By suction means
83/091	. . Responsive to work sensing means	83/2072	. . By brush means
83/093	. . . Of buckled work	83/2074	. . Including means to divert one portion of product from another
83/094	. . . . Running loop	83/2077	. . . By kerf entering guide
83/096	. . . Detector supported on or urged against work	83/2079	. . . Remaining or re-inserted product portion from base material
83/098	. . . . Resiliently biased	83/2081	. . . Gravity type
83/099	. . Manually operated	83/2083	. . . Deflecting guide
83/101	. With stopping means effective on completion of predetermined number of tool cycles	83/2085	. . . . Positionable gate in product flow path
83/121	. With means to accomplish delayed stopping after cessation of cyclic operation	83/2087	. . . Diverging product movers
83/141	. With means to monitor and control operation [e.g., self-regulating means]	83/209	. . Including means to replace product in base material after cutting
83/145	. . Including means to monitor product	83/2092	. . Means to move, guide, or permit free fall or flight of product
83/148	. . Including means to correct the sensed operation	83/2094	. . . Means to move product at speed different from work speed
83/152	. . . And modify another operation	83/2096	. . . Means to move product out of contact with tool
83/155	. . . Optimizing product from unique workpiece	83/2098	. . . . With means to effect subsequent conveying or guiding
83/159	. . Including means to compensate tool speed for work-feed variations	83/21	. . . . . Out of contact with a rotary tool
83/162	. With control means responsive to replaceable or selectable information program	83/2103	. . . . . Mover surrounds axis of tool rotation
83/164	. . For cutting component of animal; e.g., hair clipper	83/2105	. . . . . Mover mounted on rotary tool
83/166	. . Removable element carries program	83/2107	. . . . . . For radial movement of product
83/169	. . . Indeterminate length, web or strand	83/2109	. . . . . . Resiliently mounted
83/171	. . . . Magnetic	83/2111	. . . . . Mover is resiliently mounted
83/173	. . Arithmetically determined program	83/2113	. . . . . Pivoted mover
83/175	. . . With condition sensor	83/2116	. . . . . . And plural rotating tools
83/178	. . . . Responsive to work	83/2118	. . . . . Stationary mover
83/18	. . . With operator input means	83/212	. . . . . . And plural rotating tools
83/182	. With means to weigh product	83/2122	. . . . . By ejector within a hollow cutter
83/202	. With product handling means	83/2124	. . . . . . And means to strip the outer surface of a cutter
83/2022	. . Initiated by means responsive to product or work	83/2127	. . . . . Ejector operated with return stroke of cutter
83/2024	. . . Responsive to work	83/2129	. . . . . . By means carried by cooperating cutter
83/2027	. . Initiated by means directly responsive to tool movement	83/2131	. . . . . . By cam-operated ejector
83/2029	. . . In return motion of tool	83/2133	. . . . . . By resiliently biased ejector
83/2031	. . Including means to drape the product	83/2135	. . . . . Moving stripper timed with tool stroke
83/2033	. . Including means to form or hold pile of product pieces	83/2137	. . . . . . And alternatively movable to or from operating position
83/2035	. . . In nested relation	83/214	. . . . . . Latched stripper released by tool return
83/2037	. . . In stacked or packed relation	83/2142	. . . . . . Plural strippers operative upon plural tools
83/204	. . . . Stacker sweeps along product support	83/2144	. . . . . . Single stripper operative upon plural tools
83/2042	. . . . Including cut pieces overlapped on delivery means	83/2146	. . . . . Spring arm stripper
83/2044	. . . . . And means to separate product portions	83/2148	. . . . . Linkage actuated

83/215	. . . . . Carried by moving tool element or its support	83/393	. . . . . Annulus and disc-type tool pair
83/2153	. . . . . Fluid pressure actuated stripper	83/394	. . . . . One tool having unidirectional rotary motion
83/2155	. . . . . Stripper biased against product	83/395	. . . . . One tool having only rectilinear motion[s]
83/2157	. . . . . Elastomeric stripper contacting product	83/396	. . . . . Annulus and disc-type tool pair
83/2159	. . . . . By spring means	83/397	. . . . . A tool has a sequence of motion in plural paths
83/2161	. . . . . By free weight of stripper	83/398	. . . . . Internal tool is an active cutter
83/2163	. . . . . Stripper biased against product	83/40	. . . . . Multiple external active tools
83/2166	. . . . . Spring biased stripper	83/401	. . . . . Tools operate in a substantially common transverse plane of cut
83/2168	. . . . . Manually operated stripper	83/402	. . . . . With tool actuating cams on a common support
83/217	. . . . . Stationary stripper	83/403	. . . . . With manually actuated means to position or facilitate positioning of work
83/2172	. . . . . Stripper encircles moving tool	83/404	. . . . . By means to misalign aligned apertured tools
83/2174	. . . . . Blockable exit port	83/408	. . . . . Combined with another type tool of the class
83/2177	. . . . . Tool conforming member interposed between tool and work	83/412	. . . . . Rectilinear relative movement only
83/2179	. . . . . Including means to move, or resist movement of, cut pieces along delivery chute	83/416	. . . . . Rotary relative movement solely about a single pivot
83/2181	. . . . . Active delivery means mounted on tool support	83/42	. . . . . With plural apertures in one or both carriers
83/2183	. . . . . Product mover including gripper means	83/424	. . . . . By increased tensioning of work-enclosing wire
83/2185	. . . . . Suction gripper	83/444	. . . . . Tool engages work during dwell of intermittent workfeed
83/2187	. . . . . Reciprocating product handler	83/4443	. . . . . Unicyclic
83/219	. . . . . Rotating or oscillating product handler	83/4445	. . . . . Convertible to and from unicyclic
83/2192	. . . . . Endless conveyor	83/4448	. . . . . Controlled by mechanical means
83/2194	. . . . . And means to remove product therefrom	83/445	. . . . . With work-moving clamp jaw
83/2196	. . . . . Roller[s]	83/4453	. . . . . Work moved solely by movable abutment
83/2198	. . . . . Tiltable or withdrawable support	83/4455	. . . . . Operation initiated by work-driven detector means to measure work length
83/22	. . . . . Means to move product laterally	83/4458	. . . . . Work-sensing means to control work-moving or work-stopping means
83/2203	. . . . . Oscillating means	83/446	. . . . . With means to initiate tool feed by same control impulse
83/2205	. . . . . Reciprocating means	83/4463	. . . . . Work-sensing means to initiate tool feed
83/2207	. . . . . Means to move product in a nonrectilinear path	83/4465	. . . . . With work-stopping abutment in sensing means
83/2209	. . . . . Guide	83/4468	. . . . . Plural tools at same station, one positioned for continuous engagement with work
83/2211	. . . . . Abutment in path of product being moved by work feeder	83/447	. . . . . Plural tools successively actuated at same station
83/2213	. . . . . Product-diverting conduit in or from hollow tool	83/4473	. . . . . During one dwell period
83/2216	. . . . . Inclined conduit, chute or plane	83/4475	. . . . . Tool has motion additional to cutting stroke during tool cycle
83/2218	. . . . . Abutment interposed in path of free fall or flight of product	83/4478	. . . . . Tool has additional motion during work dwell
83/222	. . . . . With receptacle or support for cut product	83/448	. . . . . Included in plural cutting cycles
83/242	. . . . . With means to clean work or tool	83/4483	. . . . . Tool has work-feeding motion
83/263	. . . . . With means to apply transient nonpropellant fluent material to tool or work	83/4486	. . . . . With variable direction of work-feed from cycle to cycle
83/283	. . . . . With means to control or modify temperature of apparatus or work	83/4488	. . . . . In one of certain selected directions
83/293	. . . . . Of tool	83/4491	. . . . . Interlock between tool actuating and work feed means
83/303	. . . . . With tool sharpener or smoother	83/4493	. . . . . Tool motion initiates work feed and <i>vice versa</i>
83/313	. . . . . Spatially fixed tool	83/4496	. . . . . Stored energy means for moving work or tool, loaded by tool or work
83/323	. . . . . With means to stretch work temporarily	83/4498	. . . . . Work feed means actuates energy storage device for tool
83/343	. . . . . With means to deform work temporarily	83/4501	. . . . . Work feed means controlled by means mounted on tool or tool support
83/364	. . . . . By fluid blast and/or suction	83/4503	. . . . . Such means drives the work feed means
83/384	. . . . . By tool inside hollow work	83/4506	. . . . . Work feed means carried by tool or tool support
83/385	. . . . . Work pre-packed with internal tool[s]	83/4508	. . . . . With supplemental work feed means
83/386	. . . . . With expanding mandrel	83/4511	. . . . . On return stroke of tool
83/387	. . . . . Interrelated tool feed means and means to actuate work immobilizer		
83/388	. . . . . Actuated clamp element and work holder coact to position work		
83/39	. . . . . Synchronized tool and work feeding means		
83/391	. . . . . With means to position tool[s] for cutting		
83/392	. . . . . One tool [either internal or external] having compound motion		

- 83/4513 . . . Work feed means halted by means on tool or tool support
- 83/4516 . . Work-feed mechanism in nonfeed motion effects or initiates tool actuation
- 83/4518 . . . By striking tool actuator
- 83/4521 Nonfeed motion is reverse to feed motion
- 83/4523 . . With means to vary number of work-feed increments between tool strokes
- 83/4526 . . Dwell caused by imposing reverse motion on portion of flexible moving work
- 83/4529 . . With uninterrupted flow of work from supply source
- 83/4531 . . Work feed increment shorter than longitudinal tool field
- 83/4534 . . Unequal work feed increments in recurring series
- 83/4536 . . . Work carriage carries ratchet means to determine increments
- 83/4539 . . Means to change tool position, or length or datum position of work- or tool-feed increment
- 83/4541 . . . With means to vary magnitude of work-feed increment
- 83/4544 Multi-increment type [e.g., ticket issuing]
- 83/4546 Length selector initiates machine operation
- 83/4549 By change in length of one member of feed-driving linkage
- 83/4551 Rotating member
- 83/4554 By change of effective shape of driving or driven surface of element of work-feed mechanism
- 83/4556 By adjustment of fixed stop
- 83/4559 . . . With means to vary magnitude or base position of tool stroke
- 83/4561 . . With means to facilitate manual repositioning [shift] of work
- 83/4564 . . With means to produce plurality of work-feed increments per tool cycle
- 83/4567 . . . Including supplemental work-feed means
- 83/4569 Manual
- 83/4572 With stop adapted to engage abutment surface on work
- 83/4574 Plurality of work stops successively effective
- 83/4577 . . Work fed successively to plural tools
- 83/4579 . . . With change of direction between tools
- 83/4582 . . Work advance occurs during return stroke of tool
- 83/4584 . . Dwell defined only by "dead-center" of rotating crank
- 83/4587 . . Dwell initiated by disengagement of surface of moving frictional feed means from work
- 83/4589 . . . Feed means has interrupted frictional surface
- 83/4592 . . . Feed means has rotary motion
- 83/4594 . . Dwell caused by clamping or blocking work during continuous operation of feed means
- 83/4597 . . With means to control magnitude of work-feed increment or work acceleration
- 83/4599 . . . Means to prevent random or excessive work feeds
- 83/4602 . . . Full stroke required of feed means
- 83/4604 . . Work feed functions as tool support
- 83/4607 . . With rotary work-carrier
- 83/461 . . With abutment to position work being fed with respect to cutter
- 83/4612 . . . With slip between positioned work and feed means
- 83/4615 . . Work guide and feed means have open side
- 83/4617 . . Work feed means modified to maintain clearance from tool
- 83/462 . . Plurality of work feed means in separate paths
- 83/4622 . . Intermittent drive type of gearing for work-feed means
- 83/4625 . . . Gearing modified to lock the work-feed means
- 83/4627 . . . Mutilated gear in mesh with gear driving work-feed means
- 83/463 . . Work-feed element contacts and moves with work
- 83/4632 Comprises a work-moving gripper
- 83/4635 Comprises element entering aperture in, or engaging abutment surface on, work
- 83/4637 . . With means to guide, position, or present work to work-feed means
- 83/464 . . . Means to transport work to work-feed means
- 83/4642 Including means to pick articles from pack or stack
- 83/4645 . . With means to clamp work during dwell
- 83/4647 . . One-revolution clutch in tool drive
- 83/465 . . Cutting motion of tool has component in direction of moving work
- 83/4653 . . With means to initiate intermittent tool action
- 83/4656 . . . Tool moved in response to work-sensing means
- 83/4659 With means to vary "length" of product
- 83/4662 To vary an end-product "length" [e.g., "crop cut"]
- 83/4664 With photo-electric work-sensing means
- 83/4667 With trip-switch work-sensing means
- 83/467 To initiate feed movement of tool
- 83/4673 And to initiate flying movement of tool
- 83/4676 With work-responsive means to initiate flying movement of tool
- 83/4679 With flying work-gripper means related to tool carrier
- 83/4682 With means controlling flying speed dependent on work speed
- 83/4685 . . . With means to vary frequency of initiation
- 83/4688 By orbitally traveling trigger pin[s]
- 83/4691 . . Interrelated control of tool and work-feed drives
- 83/4693 . . With means to concurrently adjust flying frequency and retain flying speed of tool
- 83/4696 . . Plural diverse flying cutters
- 83/4699 . . Combined with other type cutter
- 83/4702 . . . With slitter
- 83/4705 . . Plural separately mounted flying cutters
- 83/4708 . . With means to render cutter pass[es] ineffective
- 83/4711 . . . With means to produce "mis-cut"
- 83/4714 . . Oscillating work shifter adjacent cutter
- 83/4717 . . . Work actuated senser initiates shifter
- 83/472 . . Wire tool
- 83/4722 . . . On tool support having reciprocation parallel to direction of work-feed
- 83/4725 And rotation about axis parallel to direction of work-feed
- 83/4728 . . Tool flies by engagement with the work
- 83/4731 . . . Tool merely flexes with moving work
- 83/4734 . . Flying support or guide for work
- 83/4737 . . With tool speed regulator
- 83/474 . . With work feed speed regulator

- 83/4743 . . . With means to vary cyclically speed of work
- 83/4746 . . Spring return of tool in counterfly direction
- 83/4749 . . Tool mounted on oscillating standard
- 83/4751 . . . Both tools of couple on single standard
- 83/4754 One tool swings out of work path on return stroke
- 83/4757 . . Tool carrier shuttles rectilinearly parallel to direction of work feed
- 83/476 . . . Including means to secure work to carrier
- 83/4763 . . . Both members of cutting pair on same carrier
- 83/4766 . . Orbital motion of cutting blade
- 83/4769 . . . Work feeder mounted on tool support
- 83/4772 Gripper-type feeder
- 83/4775 . . . Tool speed varied within each orbital cycle
- 83/4778 . . . Work feed gripper carried on endless belt
- 83/478 . . . Endless belt or chain tool carrier
- 83/4783 . . . Constantly oriented tool with arcuate cutting path
- 83/4786 Cutting couple type
- 83/4789 . . . Rotatable disc-type tool on orbiting axis
- 83/4792 Idling disc
- 83/4795 . . . Rotary tool
- 83/4798 Segmented disc slitting or slotting tool
- 83/4801 With undulant cutting edge [e.g., "pinking" tool]
- 83/4804 Single tool action drive
- 83/4807 With one-revolution drive
- 83/4809 With loop former preceding tool
- 83/4812 Compound movement of tool during tool cycle
- 83/4815 Axial reciprocation of tool
- 83/4818 Interconnected work feeder and tool driver
- 83/4821 Side cutting helical blade
- 83/4824 With means to cause progressive transverse cutting
- 83/4827 With helical cutter blade
- 83/483 With cooperating rotary cutter or backup
- 83/4833 Cooperating tool axes adjustable relative to each other
- 83/4836 With radial overlap of the cutting members
- 83/4838 With anvil backup
- 83/4841 With resilient anvil surface
- 83/4844 Resiliently urged cutter or anvil member
- 83/4847 With cooperating stationary tool
- 83/485 . Cutter with timed stroke relative to moving work
- 83/487 . . Work swings about progressively cutting tool during tool stroke
- 83/489 . . Tool actuated by movable work support
- 83/49 . . Traveling cutter
- 83/492 . . With means to vary timing of tool feed
- 83/494 . . Uniform periodic tool actuation
- 83/496 . . . With periodic lateral feed of tool or work
- 83/498 . . . With plural tool stations
- 83/50 . . . Reciprocating tool
- 83/501 . . . With plural tools on a single tool support
- 83/503 . . With plural tool stations
- 83/505 . Operation controlled by means responsive to product
- 83/515 . . Actuation of tool controlled
- 83/525 . Operation controlled by detector means responsive to work
- 83/527 . . With means to control work-responsive signal system
- 83/528 . . . To delay response to work-senser
- 83/53 . . . To change length of product
- 83/531 . . With plural work-sensing means
- 83/533 . . With photo-electric work-sensing means
- 83/535 . . Release of interlock controlled
- 83/536 . . Movement of work controlled
- 83/538 . . Positioning of tool controlled
- 83/54 . . Actuation of tool controlled by work-driven means to measure work length
- 83/541 . . Actuation of tool controlled in response to work-sensing means
- 83/543 . . . Sensing means responsive to work indicium or irregularity
- 83/544 . . . With trip-switch in work-sensing mechanism
- 83/546 . Interrelated tool actuating and work guide moving means
- 83/566 . Interrelated tool actuating means and means to actuate work immobilizer
- 83/5669 . . Work clamp
- 83/5678 . . . Tool deflected by guide on tightened clamp
- 83/5687 With means to control clamping force
- 83/5696 . . . Clamp driven by reaction from tool force
- 83/5705 . . . With means providing for plural steps in clamping stroke
- 83/5715 . . . With sequencing means
- 83/5724 . . . With provision for manual control of clamp
- 83/5733 . . . Tool or tool support on movable clamp jaw
- 83/5742 . . . Clamp moved by direct impact of tool or tool support
- 83/5751 Clamp retracted by impact of tool or tool support
- 83/576 . . . Clamp actuating means driven by tool or tool support
- 83/5769 Clamp yieldably driven by tool or tool support
- 83/5778 With resilient drive element
- 83/5787 . . . Clamp driven by yieldable means
- 83/5796 Drive means is resilient
- 83/5805 Fluid pressure yieldable drive means
- 83/5815 . . Work-stop abutment
- 83/5824 . . . Oppositely effective abutments
- 83/5833 . . . With cyclic means to alter work-stopping position
- 83/5842 . . . Stop partakes of tool motion
- 83/5851 Carried by tool or tool support
- 83/586 . Interrelated tool actuating means and means to actuate work-mover stop
- 83/606 . Interrelated tool actuating means and guard means
- 83/613 . . Work guard
- 83/619 . . Cutter guide slot closer
- 83/626 . Operation of member controlled by means responsive to position of element remote from member [e.g., interlock]
- 83/637 . . With means to initiate operation of member
- 83/647 . With means to convey work relative to tool station
- 83/6472 . . By fluid current
- 83/6473 . . Centrifugal feed to tangential tool [e.g., "Beria" type]
- 83/6475 . . With means to regulate work-feed speed
- 83/6476 . . Including means to move work from one tool station to another

- 83/6478 . . . Tool stations angularly related
- 83/648 Work manipulated between tool stations
- 83/6481 With static tool
- 83/6483 . . . Tool stations staggered relative to one another
- 83/6484 . . . Punch or die station
- 83/6486 . . . Notcher or pinker station
- 83/6488 . . . Work reciprocated past double-edged knife
- 83/6489 . . . Slitter station
- 83/6491 And transverse cutter station
- 83/6492 . . Plural passes of diminishing work piece through tool station
- 83/6494 . . . Work alternately, angularly re-oriented relative to tool station
- 83/6496 By additional means to engage work and orient it relative to tool station
- 83/6497 By roller or roll-like element
- 83/6499 . . . Work rectilinearly reciprocated through tool station
- 83/65 With means to cause or permit angular re-orientation of work about axis parallel to plane of cut
- 83/6502 By endless member having work-engaging teeth
- 83/6504 By member having work-engaging tooth
- 83/6505 Including plural work-engaging teeth
- 83/6507 Fluid operated
- 83/6508 With means to cause movement of work transversely toward plane of cut
- 83/651 By means to cause movement toward and away from plane of cut
- 83/6512 Actuated by movement of a member on reciprocating means
- 83/6513 Actuated by passive means which is external to reciprocating means
- 83/6515 By means to define increment of movement toward plane of cut
- 83/6516 Interrelated with movement of reciprocating means
- 83/6518 By pusher mechanism
- 83/652 With additional work holding or positioning means
- 83/6521 Work holding means includes actuator
- 83/6523 Including plural, simultaneously acting pusher elements
- 83/6524 Independently adjustable
- 83/6526 With additional means to retract elements
- 83/6528 Power derived from movement of reciprocating means
- 83/6529 Power derived from fluid pressure means
- 83/6531 Movement by screw means
- 83/6532 Movement by rack and pinion or pawl
- 83/6534 With handle
- 83/6536 By carriage
- 83/6537 By cable or belt drive
- 83/6539 . . With means for transverse positioning of work on a moving conveyor
- 83/654 . . With work-constraining means on work conveyor [i.e., "work-carrier"]
- 83/6542 . . . Plural means to constrain plural work pieces
- 83/6544 End of work protrudes through aperture in carrier
- 83/6545 . . . With means to guide work-carrier in nonrectilinear path
- 83/6547 About axis fixed relative to tool station
- 83/6548 Infeed
- 83/655 About vertical axis
- 83/6552 Cut normal to axis
- 83/6553 Work-guide tube
- 83/6555 Cut normal to axis
- 83/6556 Oscillating work-carrier
- 83/6558 Multiple cutters
- 83/656 Coaxial rotary cutters
- 83/6561 Work stationary during cut
- 83/6563 . . . With means to orient or position work carrier relative to tool station
- 83/6564 By pattern or templet
- 83/6566 By indexing means
- 83/6568 . . . With additional work-locating means on work-carrier
- 83/6569 . . With means to stop work conveyor
- 83/6571 . . With means to store work articles
- 83/6572 . . With additional means to engage work and orient it relative to tool station
- 83/6574 . . . By work-stopping abutment
- 83/6576 . . . By opposed lateral guide means
- 83/6577 . . . With means to adjust additional means
- 83/6579 . . With means to press work to work-carrier
- 83/658 . . With projections on work-carrier [e.g., pin wheel]
- 83/6582 . . Tool between tandem arranged work carrying means
- 83/6584 . . Cut made parallel to direction of and during work movement
- 83/6585 . . . Including nonconcurrently acting tool
- 83/6587 . . . Including plural, laterally spaced tools
- 83/6588 . . . Tools mounted on common tool support
- 83/659 Tools axially shiftable on support
- 83/6592 . . . Interrelated work-conveying and tool-moving means
- 83/6593 With reciprocating tool [e.g., "jigsaw" type]
- 83/6595 With means to move tool laterally of feed direction during cutting
- 83/6596 With means to effect difference between work speed and tool speed
- 83/6598 Tool co-axial with work-conveying means
- 83/66 . . . With means to press work to tool
- 83/6601 . . . Bevel cutting tool
- 83/6603 . . . Tool shiftable relative to work-conveying means
- 83/6604 . . . Tool in contact with surface of work-conveying means
- 83/6606 . . . Tool between laterally spaced work-conveying means
- 83/6608 . . . By rectilinearly moving work carriage
- 83/6609 Angularly adjustable
- 83/6611 Having positive adjustment stop; e.g., link
- 83/6612 Having position indicating means
- 83/6614 Pusher engaging rear surface of work
- 83/6616 Having means to actuate pusher
- 83/6617 Hydraulic or pneumatic means
- 83/6619 Gear or pulley actuated pusher
- 83/662 Lever, cam, or link actuated pusher

- 83/6622 Having means to actuate carriage
- 83/6624 Hydraulic or pneumatic means
- 83/6625 Gear or pulley
- 83/6627 Adapted to place tension on flacid member
- 83/6628 Lever, cam, or link means
- 83/663 On or attached to vehicle
- 83/6632 Supported for movement at one side of tool only
- 83/6633 . . . By work moving flexible chain or conveyor
- 83/6635 . . . By feed roller
- 83/6636 Pinch rollers
- 83/6638 . . . Unattached manual work pusher
- 83/664 . . . Roller
- 83/6641 . . . Plural independent rollers for feed of plural distinct work
- 83/6643 . . . Shaped to conform to work
- 83/6644 . . . With work-supplying reel
- 83/6646 And provision for selecting feed length
- 83/6648 . . . Continuous conveying during, cutting; e.g., straw cutting
- 83/6649 . . . Supporting work at cutting station
- 83/6651 Comprising part of cutting station
- 83/6652 . . . Tool and feed roller actuated by common handle
- 83/6654 . . . Tool and roller on common movable support
- 83/6656 . . . Rectilinear movement only
- 83/6657 . . . Tool opposing pusher
- 83/6659 Hydraulically or pneumatically actuated
- 83/666 Screw actuated
- 83/6662 Gear or pulley actuated
- 83/6664 Lever, cam, or link actuated
- 83/6665 Spring or gravity urged
- 83/6667 . . . Work carrier rotates about axis fixed relative to tool station
- 83/6668 . . . Interrelated work-feeding means and tool-moving means
- 83/667 . . . Tool carrier or guide affixed to work during cutting
- 83/674 . . . By flexible work-engaging member
- 83/68 . . . Entirely work supported
- 83/687 . . . By tool reciprocable along elongated edge
- 83/6875 . . . With means permitting tool to be rotatably adjusted about its cutting edge during cutting
- 83/688 . . . With dynamic balancing or shock absorbing means
- 83/6885 . . . With tool of another type
- 83/689 . . . With means to change to other type tool
- 83/6895 . . . Plural reciprocable tools
- 83/69 . . . Stored energy furnishes drive in one direction
- 83/6905 . . . With tool in-feed
- 83/691 And auxiliary means for promoting or retarding tool in-feed
- 83/6915 By yieldable means
- 83/692 And means to vary tool in-feed speed
- 83/6925 With interrelated tool actuating and in-feed means
- 83/693 . . . Of rectilinearly reciprocating tool
- 83/6935 With in-feed by pivoting carrier
- 83/694 . . . And means to prevent tool in-feed
- 83/6945 . . . With passive means to guide tool directly
- 83/695 By plural opposed guide surfaces
- 83/6955 Having relative adjustment between guide surfaces
- 83/696 With relative adjustment between guide and work or work-support
- 83/6965 By or with additional movable work-support portion
- 83/697 By rotation about an axis parallel to the work-support surface
- 83/6975 By rotation about an axis perpendicular to the work-support surface
- 83/698 . . . Including means to cause nonrectilinear tool infeed
- 83/6985 . . . Of arcuately oscillating tool
- 83/699 . . . Of tool carrier on single moving pivot
- 83/6995 Pivot moves in closed loop
- 83/70 Pivot moves to and fro in arcuate path
- 83/7005 Axis of arcuate path moves during cutting
- 83/701 Pivot moves to and fro in rectilinear path
- 83/7015 . . . Having uniplanar compound motion
- 83/702 By plural arcuately oscillating carrier
- 83/7025 . . . Constantly oriented tool travelling in orbit
- 83/703 . . . Tool rocks cutting reciprocations
- 83/7035 One tool reciprocates along fixed guide element
- 83/704 . . . With work-support and means to vary relationship between tool and work support
- 83/7045 . . . Arcuately oscillating tool carried on single pivot
- 83/705 . . . With means to support tool at opposite ends
- 83/7055 And apply drive force to both ends of tool
- 83/706 By flexible drive means
- 83/7065 By reciprocating rigid support
- 83/707 By endless band or chain knife
- 83/7076 With programming means
- 83/7083 With cutter other than endlessly orbiting type
- 83/7089 . . . Including contiguous oppositely moving knife portions
- 83/7095 . . . With means to change to non-endlessly orbiting cutter
- 83/7101 . . . With tool in-feed
- 83/7108 Including ground-traversing vehicle
- 83/7114 Including means to permit arcuate in-feed motion
- 83/712 Including means to relocate path of in-feed motion
- 83/7126 Angular relative previous path
- 83/7133 By gravity
- 83/7139 With fluid in-feed regulating means
- 83/7145 By motor-driven mechanism
- 83/7151 With scale or indicator
- 83/7158 Including plural cutting zones
- 83/7164 With adjustment of separation between zones
- 83/717 By lever means
- 83/7176 By screw-threaded means
- 83/7183 Including "figure-8" band
- 83/7189 Comprising plural bands
- 83/7195 Including means to adjust relationship between band and work-support surface
- 83/7201 By varying angle between band and work-support surface
- 83/7208 By tilting band carrier
- 83/7214 About point of intersection of cutting span and work-support surface

83/722	. . .	By varying distance between band and work-support surface	83/7653	. . . .	Having curved cutting edge to make arcuate cut, plural nonaligned intersecting cutting edges, or spaced punches
83/7226	. .	With means to guard the tension	83/766	. . . .	Spaced edges
83/7233	. . .	Including means to retard undriven pulley or sprocket	83/7667	. . .	Having curved cutting edge to make arcuate cut, plural nonaligned intersecting cutting edges, or spaced punches
83/7239	. . .	With means to vary distance between pulley or sprocket axes	83/7673	. . . .	Spaced edges
83/7245	. . . .	And angular relationship of axes	83/768	. .	Rotatable disc tool pair or tool and carrier
83/7251	. . . .	Including means to yieldably bias pulley	83/7684	. .	With means to support work relative to tool[s]
83/7258	. . . . .	By fluid means	83/7688	. . .	Plural tool elements successively actuated at same station
83/7264	. .	With special blade guide means	83/7693	. . .	Tool moved relative to work-support during cutting
83/727	. .	With means to guide moving work	83/7697	. . . .	Tool angularly adjustable relative to work-support
83/728	. .	In pivotal or arcuate movement	83/7701	. . .	Supporting surface and tool axis angularly related
83/73	. .	Guide fixed to or integral with stationary tool element	83/7705	. . . .	Adjustable angular relationship
83/731	. . .	Tool element cooperates with a second tool	83/7709	. . .	Unidirectionally movable work support
83/732	. .	With guard	83/7713	. . . .	With opposed work-presser
83/734	. .	With attachment or operative connection to tool carrier	83/7718	. . . . .	Presser co-axial with tool
83/735	. .	With attachment or operative connection to passive tool guide	83/7722	. . .	Support and tool relatively adjustable
83/736	. .	Guide cooperates with template or straight edge secured to work	83/7726	. . . .	By movement of the tool
83/738	. .	Curved or deflecting guide	83/773	. . . .	Work-support includes passageway for tool [e.g., slotted table]
83/739	. .	Positively confines or otherwise determines path of work	83/7734	. .	With guard for tool
83/74	. .	Adapted to permit maneuvering of work at tool zone	83/7738	. .	Optional tool pairs alternatively operative
83/741	. .	With movable or yieldable guide element	83/7743	. . .	One element of tool pairs common to all pairs
83/743	. . .	Opposed to work-supporting surface	83/7747	. .	With means to permit replacement of tool
83/744	. .	Plural guide elements	83/7751	. .	Means to separate elements of tool pair
83/745	. . .	Opposed	83/7755	. .	Carrier for rotatable tool movable during cutting
83/747	. .	Opposed to work-supporting surface	83/7759	. . .	Unicyclic movement
83/748	. .	With work immobilizer	83/7763	. . .	Tool carrier reciprocable rectilinearly
83/7487	. .	Means to clamp work	83/7768	. . . .	With means to adjust path of reciprocation
83/7493	. . .	Combined with, peculiarly related to, other element	83/7772	. . . . .	Angular relative to previous path
83/75	. . . .	With or to tool guide	83/7776	. . . .	With means to reciprocate carrier
83/7507	. . . .	Guide for traveling cutter	83/778	. . . . .	And means to rotate tool
83/7513	. . . .	Tool or tool support on movable clamp jaw	83/7784	. . . .	With means to rotate tool
83/752	. . .	With means providing for plural steps in clamping stroke	83/7788	. . .	Tool carrier oscillated or rotated
83/7527	. . .	With equalizer or self-aligning jaw	83/7793	. .	Means to rotate or oscillate tool
83/7533	. . .	With biasing or counterbalancing means	83/7797	. . .	Including means to rotate both elements of tool pair
83/754	. . .	Clamp driven by yieldable means	83/7801	. . . .	Including means to rotate both elements at different speeds
83/7547	. . .	Liquid pressure actuating means	83/7805	. . . .	And means to change speed of rotation
83/7553	. . .	Including means to retain clamp jaw in position	83/7809	. .	Tool pair comprises rotatable tools
83/756	. . .	Self-locking drive means	83/7813	. . .	Tool pair elements angularly related
83/7567	. . .	Manually actuated drive means	83/7818	. . . .	Elements of tool pair angularly adjustable relative to each other
83/7573	. . .	Including clamping face of specific structure	83/7822	. . .	Tool pair axially shiftable
83/758	. . .	With means to adjust clamp position or stroke	83/7826	. . . .	With shifting mechanism for at least one element of tool pair
83/7587	. .	Gapped work-constrainer	83/783	. . .	Tool pair comprises contacting overlapped discs
83/7593	. .	Work-stop abutment	83/7834	. . . .	With means to effect axial pressure on pair
83/76	. . .	With scale or indicator	83/7838	. . . . .	With means to change axial pressure
83/7607	. . .	Normal to plane of cut	83/7843	. . . .	With means to change overlap of discs
83/7613	. . . .	Adjustable	83/7847	. . .	Tool element axially shiftable
83/762	. . . . .	Angularly relative to plane of cut; e.g., miter	83/7851	. . .	Tool pair comprises disc and cylindrical anvil
83/7627	. . . .	With traversing cutter guide; e.g., cut-off saw	83/7855	. . . .	With adjustable means to urge tool elements together
83/7633	. . .	Collapsible	83/7859	. . .	Elements of tool pair adjustably spaced
83/764	. . .	Retractable			
83/7647	. . .	Adjustable			

- 83/7863 . . Tool pair comprises rotatable tool and nonrotatable tool
- 83/7868 . . Tool element selectively operative
- 83/7872 . . Tool element mounted for adjustment
- 83/7876 . . . Plural, axially spaced tool elements
- 83/788 . . Tool pair comprises rotatable anvil and fixed-type tool
- 83/793 . . Anvil has motion in addition to rotation [i.e., traveling anvil]
- 83/798 . . . Additional motion is along fixed arcuate path
- 83/803 . . . With plural anvils
- 83/808 . . Two tool pairs, driver for one pair moves relative to driver for other pair
- 83/811 . . One tool support acts as driver for other
- 83/814 . . . Punch and shear
- 83/817 . . With variable spacing between tool pairs
- 83/819 . . . With intermediate work support
- 83/822 . . Punch and shear
- 83/825 . . Successively acting
- 83/828 . . With illuminating or viewing means for work
- 83/839 . . Mirror or lens
- 83/849 . . With signal, scale, or indicator
- 83/85 . . Signal; e.g., alarm
- 83/851 . . Indicator comprising work or product
- 83/852 . . Responsive to force
- 83/853 . . Indicates tool position
- 83/855 . . . Relative to another element
- 83/856 To work-engaging member
- 83/857 Calibrated scale or indicator
- 83/858 Indicates dimension of work being cut
- 83/859 Dynamic indicator
- 83/86 To another tool assembly
- 83/861 To cooperating tool
- 83/862 To another component of tool assembly
- 83/863 Adjustable guide for traversing tool; e.g., radial saw guide or miter saw guide
- 83/865 . . Indicates work characteristic
- 83/866 . . Indicates wear
- 83/867 . . Bubble level
- 83/868 . . Counter
- 83/869 . . Means to drive or to guide tool
- 83/8691 . . Unicyclic
- 83/8693 . . . With adjustable stopping point or tool
- 83/8694 . . . With brake or blocking means
- 83/8696 . . Means to change datum plane of tool or tool presser stroke
- 83/8697 . . . For disabling of continuously actuated cutter
- 83/8699 . . . With adjustable stop
- 83/87 . . . By varying length of tool stroke
- 83/8702 . . Clicker die press
- 83/8703 . . . With die handling attachment
- 83/8704 . . . With reciprocating presser
- 83/8706 Laterally movable to selective operative positions
- 83/8707 Pivotal or revolving only
- 83/8709 With means to impart, limit, or control pivotal motion of presser
- 83/871 Interrelated with presser reciprocating means
- 83/8712 With means to mount presser for oscillation about column
- 83/8713 With adjustable bed block
- 83/8714 Including presser member reinforcing, or flexure compensating, means
- 83/8716 With manually actuated control apparatus for reciprocation of presser member
- 83/8717 . . By deforming resilient tool or tool support
- 83/8719 . . With transmission yieldable on overload
- 83/872 . . With guard means
- 83/8722 . . . Static
- 83/8723 Adjustable
- 83/8725 . . Including movable, tool protecting, cushioning sheet
- 83/8726 . . Single tool with plural selective driving means
- 83/8727 . . Plural tools selectively engageable with single drive
- 83/8729 . . . Predetermined sequence of selection
- 83/873 Of paired tools
- 83/8732 . . . Turret of tools
- 83/8733 . . Tool movable to cooperate selectively with one of a plurality of mating tools
- 83/8735 . . With means providing for plural steps in tool stroke
- 83/8736 . . Sequential cutting motions
- 83/8737 . . With tool positioning means synchronized with cutting stroke
- 83/8739 . . . Anvil moves into and out of operative position
- 83/874 . . . Straight line positioning
- 83/8742 . . Tool pair positionable as a unit
- 83/8743 . . . Straight line positioning
- 83/8745 . . Tool and anvil relatively positionable
- 83/8746 . . . Straight line
- 83/8748 . . Tool displaceable to inactive position [e.g., for work loading]
- 83/8749 . . . By pivotal motion
- 83/875 . . With templet surface following tool
- 83/8752 . . Tool moves work to and against cooperating tool
- 83/8753 . . . With means to clamp or bind work to moving tool
- 83/8755 . . . One tool resiliently mounted or biased
- 83/8756 . . . Work forced through tool aperture or between spaced cooperating tools
- 83/8758 . . . Manually actuated work-moving tool
- 83/8759 . . With means to connect or disconnect tool and its drive
- 83/8761 . . . Continuously moving drive means [e.g., "gag"]
- 83/8762 Hand actuated connecting means
- 83/8763 . . Convertible from tool path to another or from implement to machine
- 83/8765 . . Magnet- or solenoid-actuated tool
- 83/8766 . . . Tool movement modifies actuating circuit
- 83/8768 . . . Solenoid core is tool or tool support
- 83/8769 . . Cutting tool operative in opposite directions of travel
- 83/8771 . . Motion direction of tool influenced by resistance of work
- 83/8772 . . One tool edge of tool pair encompasses work [e.g., wire cutter]
- 83/8773 . . Bevel or miter cut
- 83/8775 . . With tool tensioning means
- 83/8776 . . Constantly urged tool or tool support [e.g., spring biased]
- 83/8778 . . . Ledger blade
- 83/8779 . . . Oscillating tool urged axially
- 83/8781 And urged about pivotal axis

83/8782	. . . Stored energy furnishes cutting force	83/8855	. . . With spaced guide pins [e.g., die set leader pins]
83/8784	. . . . With reset	83/8857	. . . With inclined guides
83/8785	. . . Through return [noncutting] stroke	83/8858	. . . Fluid pressure actuated
83/8786	. . . . Oscillating tool	83/886	. . . . Utilizing fluid amplifier
83/8788	. . Tool return mechanism separate from tool advance mechanism	83/8861	. . . . Diaphragm
83/8789	. . With simple revolving motion only	83/8863	. . . . Explosive fluid
83/8791	. . . Tool mounted on radial face of rotor	83/8864	. . . . Plural cylinders
83/8792	. . . Variable speed during one revolution [e.g., intermittent]	83/8866	. . . . Offset cutter
83/8794	. . . Revolving tool moves through recess in work holder or cooperating tool	83/8867	. . . With means to adjust tool position on tool holder
83/8795	. . . . Progressively cutting	83/8868	. . . . Adjustably mounted cooperating tool
83/8796	. . . Progressively cutting	83/887	. . Parallel draw-cut [e.g., translatory]
83/8798	. . With simple oscillating motion only	83/8871	. . . Link suspension
83/8799	. . . Plural tool pairs	83/8873	. . Straight line motion combined with tilting in plane of stroke
83/8801	. . . . Plural tools on single oscillating arm [i.e., tool holder]	83/8874	. . Uniplanar compound motion
83/8802	. . . And means to move cooperating cutter member	83/8876	. . . Reciprocating plus work approach [e.g., saw type]
83/8804	. . . Tool driver movable relative to tool support	83/8877	. . . With gyratory drive
83/8805	. . . . Cam or eccentric revolving about fixed axis	83/8878	. . Guide
83/8807	. . . . Gear or ratchet pawl drives toothed tool support	83/888	. . . With nonrigidly positioned member
83/8808	. . . . Toggle links, one link pivoted to tool support	83/8881	. . . With anti-friction means
83/8809	. . . . Fixed axis lever	83/8883	. . . . Roller with peripheral flange or groove
83/8811	. . . . Adjustable mechanical advantage	83/8884	. . . . Disc
83/8812	. . . Cutting edge in radial plane	83/8886	. . . With means to vary space between opposed members
83/8814	. . . . Adjustable	83/8887	. . . . By rectilinear movement of member
83/8815	. . . . With guide means for the cutting member	83/8889	. . . With means to adjust position
83/8817	. . . Axially extending cutting edge	83/889	. Tool with either work holder or means to hold work supply
83/8818	. . . . Axially progressing cut	83/896	. . Rotatable wound package supply
83/882	. . . . Adjustable	83/902	. . . Plural supply sources
83/8821	. . With simple rectilinear reciprocating motion only	83/909	. Cutter assemblage or cutter element therefor [e.g., chain saw chain]
83/8822	. . . Edge-to-edge of sheet or web [e.g., traveling cutter]	83/913	. . With means permitting removal of cutter element
83/8824	. . . With provision for dynamic balance	83/917	. . Having diverse cutting elements
83/8825	. . . With lost motion in tool drive	83/921	. . . And noncutting depth gauge
83/8827	. . . Means to vary force on, or speed of, tool during stroke	83/925	. . Having noncutting depth gauge
83/8828	. . . Plural tools with same drive means	83/929	. Tool or tool with support
83/883	. . . . Tools positioned by template	83/9292	. . Wire tool
83/8831	. . . . Plural distinct cutting edges on same support	83/9295	. . Work supported tool [e.g., clicker die]
83/8832	. . . . . Concentrically mounted	83/9297	. . . With product ejection facilitator
83/8834	. . . . . Successively acting	83/93	. . . With tool manipulating portion
83/8835	. . . And means to move cooperating cutting member	83/9302	. . . With tool positioning abutment
83/8837	. . . With application of force to opposite ends of tool supporting crosshead	83/9304	. . . To sever article from work and cut within article
83/8838	. . . . By relatively movable fixed axis levers	83/9307	. . . With tool contour adjusting means
83/884	. . . . By connecting rod articulated with tool support	83/9309	. . Anvil
83/8841	. . . Tool driver movable relative to tool support	83/9312	. . . Rotatable type
83/8843	. . . . Cam or eccentric revolving about fixed axis	83/9314	. . Pointed perforators
83/8844	. . . . Gear actuated tool support	83/9317	. . Endless band or belt type
83/8845	. . . . Toggle links, one link pivoted to tool support	83/9319	. . Toothed blade or tooth therefor
83/8847	. . . . Screw actuated tool support	83/9321	. . . With means to vary tooth position
83/8848	. . . . Connecting rod articulated with tool support	83/9324	. . . With additional cutting means
83/885	. . . . Fixed axis lever	83/9326	. . . Plural separable sections
83/8851	. . . . Adjustable mechanical advantage	83/9329	. . . . Tooth separable from blade
83/8853	. . . . Including details of guide for tool or tool support	83/9331	. . . . . By independent connecting element
83/8854	. . . Progressively cutting	83/9333	. . . . . Transversely movable
		83/9336	. . . . . Arcuately movable
		83/9338	. . . . . With additional element to prevent movement of connecting element

83/9341 Rectilinearly movable
 83/9343 By deformation
 83/9346 . . . Uniformly varying teeth or tooth spacing
 83/9348 . . . Undulating tooth arrangement
 83/935 . . . Plural tooth groups
 83/9353 Including raker tooth group
 83/9355 Including intermediate raker tooth
 83/9358 . . . Series of dissimilar teeth
 83/936 . . . Series of allochiral teeth
 83/9362 . . . Teeth having transversely curved cutting edge
 83/9365 . . . Teeth having cutting edge parallel to blade surface
 83/9367 . . . Teeth having cutting edge perpendicular to blade surface
 83/937 . . Tool mounted by and between spaced arms
 83/9372 . . Rotatable type
 83/9374 . . . With spacer interposed between shaft-mounted tools
 83/9377 . . . Mounting of tool about rod-type shaft
 83/9379 At end of shaft
 83/9382 . . . Punching plus nonpunching tool
 83/9384 . . . Notching plus nonnotching tool
 83/9387 . . . Punching tool
 83/9389 Shear type
 83/9391 . . . Notching tool
 83/9394 . . . Helical tool
 83/9396 . . . Shear type
 83/9399 Cutting edge wholly parallel to axis of rotation
 83/9401 Cutting edge wholly normal to axis of rotation
 83/9403 . . . Disc type
 83/9406 . . . Radially adjustable tool
 83/9408 . . . Spaced cut forming tool
 83/9411 . . Cutting couple type
 83/9413 . . . Spiral type cutter
 83/9416 . . . To punch and cut punched article
 83/9418 . . . Punching plus nonpunching tool
 83/942 . . . Notching plus nonnotching tool
 83/9423 . . . Punching tool
 83/9425 Tool pair
 83/9428 Shear-type male tool
 83/943 Multiple punchings
 83/9432 Plural spaced successively operative shearing portions
 83/9435 Progressive cutting
 83/9437 Shear-type female tool
 83/944 Multiple punchings
 83/9442 . . . Notching tool
 83/9444 Shear type
 83/9447 . . . Shear type
 83/9449 . . . Spaced cut forming tool
 83/9452 . . . With tool contour adjusting means
 83/9454 . . Reciprocable type
 83/9457 . . Joint or connection
 83/9459 . . . Magnetic connection
 83/9461 . . . Resiliently biased connection
 83/9464 . . . For rotary tool
 83/9466 Flexible sleeve-like tool
 83/9469 Adjustable
 83/9471 Rectilinearly
 83/9473 . . . For rectilinearly reciprocating tool

83/9476 Tool is single element with continuous cutting edge [e.g., punch, etc.]
 83/9478 Tool is single element reciprocable generally perpendicularly to elongate cutting edge [e.g., shear, etc.]
 83/9481 Tool is single element reciprocable along elongate cutting edge [e.g., saw blade, etc.]
 83/9483 Adjustable
 83/9486 Rectilinearly
 83/9488 . . . Adjustable
 83/949 Rectilinearly
 83/9493 . . Stationary cutter
 83/9495 . . . Nonparallel cutting edges
 83/9498 . . . Parallel cutting edges
 83/95 . Machine frame
 83/96 . . Guard
 83/97 . Miscellaneous

Former US Class 117 Series

117/00 Single-crystal, oriented-crystal, and epitaxy growth processes; non-coating apparatus therefor
 117/10 . Apparatus
 117/1004 . . with means for measuring, testing, or sensing
 117/1008 . . . with responsive control means
 117/1012 . . . with a window or port for visual observation or examination
 117/1016 . . with means for treating single-crystal [e.g., heat treating]
 117/102 . . for forming a platelet shape or a small diameter, elongate, generally cylindrical shape [e.g., whisker, fiber, needle, filament]
 117/1024 . . for crystallization from liquid or supercritical state
 117/1028 . . . Crucibleless apparatus having means providing movement of discrete droplets or solid particles to thin-film precursor [e.g., Verneuil method]
 117/1032 . . . Seed pulling
 117/1036 including solid member shaping means other than seed or product [e.g., EDFG die]
 117/104 Means for forming a hollow structure [e.g., tube, polygon]
 117/1044 including means forming a flat shape [e.g., ribbon]
 117/1048 Pulling includes a horizontal component
 117/1052 including a sectioned crucible [e.g., double crucible, baffle]
 117/1056 including details of precursor replenishment
 117/106 including sealing means details
 117/1064 including a fully-sealed or vacuum-maintained crystallization chamber [e.g., ampoule]
 117/1068 including heating or cooling details [e.g., shield configuration]
 117/1072 including details of means providing product movement [e.g., shaft guides, servo means]
 117/1076 . . . having means for producing a moving solid-liquid-solid zone
 117/108 Including a solid member other than seed or product contacting the liquid [e.g., crucible, immersed heating element]
 117/1084 having details of a stabilizing feature
 117/1088 including heating or cooling details

- 117/1092 . . . Shape defined by a solid member other than seed or product [e.g., Bridgman-Stockbarger]
- 117/1096 . . . including pressurized crystallization means [e.g., hydrothermal]

Former US Class 137 series**137/00 Fluid handling**

- 137/0318 . Processes
- 137/0324 . . With control of flow by a condition or characteristic of a fluid
- 137/0329 . . . Mixing of plural fluids of diverse characteristics or conditions
- 137/0335 Controlled by consistency of mixture
- 137/034 Controlled by conductivity of mixture
- 137/0346 Controlled by heat of combustion of mixture
- 137/0352 Controlled by pressure
- 137/0357 . . . For producing uniform flow
- 137/0363 . . . For producing proportionate flow
- 137/0368 . . . By speed of fluid
- 137/0374 . . . For regulating boiler feed water level
- 137/0379 . . . By fluid pressure
- 137/0385 . . Carbonated beverage handling processes
- 137/0391 . . Affecting flow by the addition of material or energy
- 137/0396 . . Involving pressure control
- 137/0402 . . Cleaning, repairing, or assembling
- 137/0407 . . . Repairing or assembling hydrant [e.g., fireplug, etc.]
- 137/0413 . . . Gas or water meter repairing or assembling
- 137/0419 . . . Fluid cleaning or flushing
- 137/0424 Liquid cleaning or flushing
- 137/043 Valve or valve seat cleaning
- 137/0435 . . . Mechanical cleaning [e.g., pig, etc.]
- 137/0441 . . . Repairing, securing, replacing, or servicing pipe joint, valve, or tank
- 137/0447 Including joint or coupling
- 137/0452 Detecting or repairing leak
- 137/0458 Tapping pipe, keg, or tank
- 137/0463 Particular aperture forming means
- 137/0469 Cutter or cutting tool
- 137/0475 Having deformable or inflatable means
- 137/048 With content loading or unloading [e.g., dispensing, discharge assistant, etc.]
- 137/0486 Specific valve or valve element mounting or repairing
- 137/0491 . . . Valve or valve element assembling, disassembling, or replacing
- 137/0497 Fluid actuated or retarded
- 137/0502 Multi way valve
- 137/0508 Ball valve or rotary ball valve
- 137/0514 Gate valve
- 137/0519 Plug valve
- 137/0525 Butterfly valve
- 137/053 Float valve
- 137/0536 . Highspeed fluid intake means [e.g., jet engine intake]
- 137/0645 . . With condition responsive control means
- 137/0753 . Control by change of position or inertia of system
- 137/0777 . . With second control
- 137/0801 . . Position relative body of water [e.g., marine governors]
- 137/0826 . . . Float controlled
- 137/085 . . . Pressure or head controlled
- 137/0874 . . Vent opening or closing on tipping container
- 137/0898 . . By shifting of liquid level
- 137/0923 . . By pendulum or swinging member
- 137/0947 With servo connection to valve
- 137/0971 . Speed responsive valve control
- 137/0989 . . Acceleration responsive valve control
- 137/1007 . . With manual valve control
- 137/1026 . . Speed change and excess speed valve control
- 137/1044 . . With other condition responsive valve control
- 137/1062 . . . Governor drive failure responsive
- 137/108 . . Centrifugal mass type [exclusive of liquid]
- 137/1098 . . . With multiple valves
- 137/1116 . . . Periodically actuated valve
- 137/1135 . . . Rotating valve and rotating governor
- 137/1153 . . . Excess speed responsive
- 137/1171 With fluid servo-motor
- 137/1189 . Freeze condition responsive safety systems
- 137/1244 . . With freeze waste
- 137/1298 . . Stop and waste
- 137/1353 . . Low temperature responsive drains
- 137/1407 . Combustion failure responsive fuel safety cut-off for burners
- 137/1516 . . Thermo-electric
- 137/1624 . Destructible or deformable element controlled
- 137/1632 . . Destructible element
- 137/1639 . . . Combined destructible and fusible element
- 137/1647 . . . Explosive actuation
- 137/1654 . . . Separable valve coupling or conduit
- 137/1662 Tensile or sheer pin or bolt
- 137/1669 . . . Tensile or sheer pin or bolt
- 137/1677 Pressure causes pin or bolt to destruct
- 137/1684 . . . With alarm or indicator
- 137/1692 . . . Rupture disc
- 137/1699 Means for holding entire disc after rupture
- 137/1707 Disc burst after destruction of additional element
- 137/1714 Direct pressure causes disc to burst
- 137/1722 Two-way rupture disc
- 137/1729 Dome shape
- 137/1737 Reverse buckling
- 137/1744 Specific weakening point
- 137/1752 Integral disc assembly
- 137/1759 Knife or cutter causes disc to break
- 137/1767 Movable knife or cutter
- 137/1774 . . . With counterbalancing element
- 137/1782 . . . Frangible element returns pressure responsive valve
- 137/1789 . . . Having pressure responsive valve
- 137/1797 . . Heat destructible or fusible
- 137/1804 . . . With second sensing means
- 137/1812 . . . In fluid flow path
- 137/1819 . . . Safety cut-off
- 137/1827 With heater for destructible or fusible element
- 137/1834 With external closing means
- 137/1842 . Ambient condition change responsive
- 137/1866 . . For controlling soil irrigation
- 137/189 . . . Soil moisture sensing
- 137/1915 . . Burner gas cutoff
- 137/1939 . . Atmospheric
- 137/1963 . . . Temperature

- 137/1987 With additional diverse control
- 137/2012 . . . Pressure
- 137/2036 . . Underwater
- 137/206 . . Flow affected by fluid contact, energy field or coanda effect [e.g., pure fluid device or system]
- 137/2065 . . Responsive to condition external of system
- 137/2071 . . . And causing change or correction of sensed condition
- 137/2076 . . Utilizing diverse fluids
- 137/2082 . . Utilizing particular fluid
- 137/2087 . . Means to cause rotational flow of fluid [e.g., vortex generator]
- 137/2093 . . . Plural vortex generators
- 137/2098 . . . Vortex generator as control for system
- 137/2104 . . . Vortex generator in interaction chamber of device
- 137/2109 . . . By tangential input to axial output [e.g., vortex amplifier]
- 137/2115 With means to vary input or output of device
- 137/212 . . System comprising plural fluidic devices or stages
- 137/2125 . . . Plural power inputs [e.g., parallel inputs]
- 137/2131 Variable or different-value power inputs
- 137/2136 Pulsating power input and continuous-flow power input
- 137/2142 With variable or selectable source of control-input signal
- 137/2147 To cascaded plural devices
- 137/2153 With feedback passage[s] between devices of cascade
- 137/2158 With pulsed control-input signal
- 137/2164 . . Plural power inputs to single device
- 137/2169 . . . Intersecting at interaction region [e.g., comparator]
- 137/2174 Co-linear, oppositely-directed power inputs [e.g., impact modulator]
- 137/218 . . Means to regulate or vary operation of device
- 137/2185 . . . To vary frequency of pulses or oscillations
- 137/2191 . . . By non-fluid energy field affecting input [e.g., transducer]
- 137/2196 Acoustical or thermal energy
- 137/2202 . . . By movable element
- 137/2207 Operating at timed intervals [e.g., to produce pulses]
- 137/2213 Electrically-actuated element [e.g., electro-mechanical transducer]
- 137/2218 Means [e.g., valve] in control input
- 137/2224 . . Structure of body of device
- 137/2229 . . Device including passages having V over T configuration
- 137/2234 . . . And feedback passage[s] or path[s]
- 137/224 . . . With particular characteristics of control input
- 137/2245 Multiple control-input passages
- 137/2251 . . . And multiple or joined power-outlet passages
- 137/2256 . . . And enlarged interaction chamber
- 137/2262 . . . And vent passage[s]
- 137/2267 . . Device including passages having V over gamma configuration
- 137/2273 . . Device including linearly-aligned power stream emitter and power stream collector
- 137/2278 . Pressure modulating relays or followers
- 137/2322 . . Jet control type
- 137/2365 . . Plural series units
- 137/2409 . . With counter-balancing pressure feedback to the modulating device
- 137/2452 . . . With counter-counter balancing pressure feedback
- 137/2496 . Self-proportioning or correlating systems
- 137/2499 . . Mixture condition maintaining or sensing
- 137/2501 . . . Dividing and recombining flow
- 137/2504 By specific gravity
- 137/2506 By viscosity or consistency
- 137/2509 By optical or chemical property
- 137/2511 . . Fuel controlled by boiler or water system condition
- 137/2514 . . Self-proportioning flow systems
- 137/2516 . . . Interconnected flow displacement elements
- 137/2519 Movable trap chamber
- 137/2521 . . . Flow comparison or differential response
- 137/2524 Flow dividers [e.g., reversely acting controls]
- 137/2526 Main line flow displaces or entrains material from reservoir
- 137/2529 With electrical controller
- 137/2531 . . . Flow displacement element actuates electrical controller
- 137/2534 . . . Liquid level response
- 137/2536 Float controlled weir or valve
- 137/2539 Swinging outlet pipe controller
- 137/2541 . . . With measuring type discharge assistant
- 137/2544 . . Supply and exhaust type
- 137/2546 . . . Vacuum or suction pulsator type [e.g., milking machine]
- 137/2549 With trip linkage or snap action
- 137/2552 With pulsation responsive pilot valve
- 137/2554 . . . Reversing or 4-way valve systems
- 137/2557 . . . Waste responsive to flow stoppage
- 137/2559 . . Self-controlled branched flow systems
- 137/2562 . . . Dividing and recombining
- 137/2564 . . . Plural inflows
- 137/2567 Alternate or successive inflows
- 137/2569 Control by depletion of source
- 137/2572 One inflow supplements another
- 137/2574 . . . Bypass or relief controlled by main line fluid condition
- 137/2577 Liquid level responsive
- 137/2579 Flow rate responsive
- 137/2582 Including controlling main line flow
- 137/2584 Relief or bypass closes as main opens
- 137/2587 Bypass or relief valve biased open
- 137/2589 Pilot valve operated
- 137/2592 Carried choke
- 137/2594 Choke
- 137/2597 Variable choke resistance
- 137/2599 Venturi
- 137/2602 Flapper
- 137/2605 Pressure responsive
- 137/2607 With pressure reducing inlet valve
- 137/261 Relief port through common sensing means
- 137/2612 Common sensor for both bypass or relief valve and other branch valve
- 137/2615 Bypass or relief valve opens as other branch valve closes
- 137/2617 Bypass or relief valve biased open

137/262	. . . . .	Increasing pressure progressively closes then reopens by-pass or relief valve	137/2788	. . .	Control by filling auxiliary tank
137/2622	. . . . .	Bypass or relief valve responsive to pressure downstream of outlet valve	137/2795	. . .	Float-operated inlet to siphon
137/2625	. . . . .	Pilot valve	137/2802	. . .	Release of trapped air
137/2627	. . . . .	Outlet valve carried by bypass or relief valve	137/2808	. . . .	Through float-operated vent
137/263	. . . . .	Plural sensors for single bypass or relief valve	137/2815	. . . . .	Through liquid trap seal
137/2632	. . . . .	Sensors interconnected by timing or restrictive orifice	137/2822	. . . . .	Auxiliary liquid trap seal
137/2635	. . . . .	Pilot valve operated	137/2829	. .	With strainer, filter, separator or sediment trap
137/2637	. . . . .	Mechanical movement between sensor and valve	137/2836	. .	With recorder, register, signal, indicator or inspection window
137/264	. . . . .	Electrical control	137/2842	. .	With flow starting, stopping or maintaining means
137/2642	. . . . .	Sensor rigid with valve	137/2849	. . .	Siphon venting or breaking
137/2645	. . . . .	Flexible sensor	137/2856	. . .	With leakage or entrained air removal
137/2647	. . . . .	Pressure responsive outlet valve	137/2863	. . .	Pressure applied to liquid in supply chamber
137/265	. . .	Plural outflows	137/287	. . .	Plunge or immersion starting
137/2652	. . . . .	Single actuator operates plural outlets simultaneously	137/2877	. . .	Pump or liquid displacement device for flow passage
137/2655	. . . . .	Biased open isolation valve	137/2883	. . . . .	Piston
137/2657	. . . . .	Flow rate responsive	137/289	. . . . .	Co-axial within flow passage
137/266	. . . . .	Primer valve	137/2897	. . . . .	Collapsible bulb
137/2663	. . . . .	Pressure responsive	137/2904	. . .	Siphon inlet movable to and from seat
137/2665	. . . . .	With external control for correlating valve [e.g., manual]	137/2911	. . .	With valve or closure in-flow passage
137/2668	. . . . .	Alternately or successively substituted outflow	137/2917	. .	With means for mounting and/or positioning relative to siphon chamber
137/267	. . . . .	Control by filling auxiliary gravitating or float operating tank	137/2924	. .	Elements
137/2673	. . . . .	Control by filling outlet tank or receiver	137/2931	. .	Diverse fluid containing pressure systems
137/2675	. . . . .	Float controlled	137/2934	. .	Gas lift valves for wells
137/2678	. . . . .	Four port reversing valve	137/2937	. .	Gas pressure discharge of liquids feed traps [e.g., to boiler]
137/268	. . . . .	Responsive to pressure or flow interruption	137/294	. . .	Gas pressure controlled by amount of liquids in boiler or discharge receiver
137/2683	. . . . .	Plural outlets control with automatic reset	137/2943	. . . . .	Pressure connection at liquid level in boiler or discharge receiver
137/2685	. . . . .	Manually set to a single outflow position	137/2947	. . .	Gas pressure controlled by amount of liquid in trap
137/2688	. . . . .	Flow rate responsive	137/295	. . . . .	Plural trap chambers
137/269	. . . . .	Flow sensing turbine	137/2953	. . . . .	Gravitating
137/2693	. . . . .	Pressure responsive	137/2956	. . . . .	Gravitating vessel
137/2695	. . . . .	Responsive to outlet pressure	137/2959	. . . . .	Sinking or bucket type float
137/2698	. . . . .	Electrical control	137/2962	. . . . .	Pivoted vessel with fluid passage through pivot
137/27	. .	Liquid level responsive	137/2965	. . . . .	Float responsive
137/2703	. .	Flow rate responsive	137/2968	. . . . .	Liquid control valve positively actuated
137/2705	. . .	Pressure differential	137/2971	. . . . .	Gas condensing type
137/2708	. .	Plural sensors	137/2975	. . . . .	Gas inlet and outlet valves unitary
137/271	. . .	For single valve	137/2978	. . .	Gas pressure controlled by manual or cyclic means
137/2713	. .	Siphons	137/2981	. . . . .	Movable trap chamber
137/272	. .	Plural	137/2984	. .	Foam control in gas charged liquids
137/2727	. . .	Tank truck mounted	137/2987	. . .	Level or pressure responsive
137/2733	. . .	Sequentially discharging in parallel	137/299	. . .	Separate handling of foam
137/274	. . . . .	From plural tanks	137/2993	. . .	With conditioning trap or chamber
137/2747	. . .	Main siphon with auxiliary starting, stopping or resetting siphon	137/2996	. . . . .	Recarbonation
137/2754	. . . . .	Sinking or bucket-type float operated main siphon, float emptying auxiliary siphon	137/30	. . . . .	With trap or chamber by-pass
137/2761	. .	With discharge-controlling receiver	137/3003	. . .	Fluid separating traps or vents
137/2768	. . .	With float	137/3006	. . .	Liquids separated from liquid
137/2774	. .	Periodic or accumulation responsive discharge	137/3009	. . .	Plural discriminating outlets for diverse fluids
137/2781	. . .	With manual control	137/3012	. . . . .	Common actuator for control valves
			137/3015	. . . . .	Choke or restricted passage gas bleed
			137/3018	. . . . .	From above liquid level
			137/3021	. . .	Discriminating outlet for liquid

- 137/3024 With alternately operated inlet and outlet valves
- 137/3028 With non-discriminating gas vent or liquid discharge
- 137/3031 Abnormal pressure responsive liquid blow-off or drain
- 137/3034 Manual control
- 137/3037 With auxiliary inlet or by-pass valve
- 137/304 With fluid responsive valve
- 137/3043 Successively opened valves
- 137/3046 Gas collecting float [e.g., inverted bucket]
- 137/3049 Downstream from valve
- 137/3052 Level responsive
- 137/3056 Weight or pressure
- 137/3059 Gravitating vessel
- 137/3062 Sinking or bucket type float
- 137/3065 Servo-control
- 137/3068 Float
- 137/3071 With main line gas outlet from trap chamber
- 137/3074 With outlet extending above liquid in trap
- 137/3077 Servo-control
- 137/308 With pressure balanced outlet valve
- 137/3084 . . . Discriminating outlet for gas
- 137/3087 With reverse flow stop or pressure regulating valve
- 137/309 Fluid sensing valve
- 137/3093 With vaporized liquid stop
- 137/3096 With separate return for condensate
- 137/3099 Float responsive
- 137/3102 . . . With liquid emptying means
- 137/3105 Self-emptying
- 137/3109 . . Liquid filling by evacuating container
- 137/3112 . . Main line flow displaces additive from shunt reservoir
- 137/3115 . . Gas pressure storage over or displacement of liquid
- 137/3118 . . . Surge suppression
- 137/3121 . . . With return of liquid to supply
- 137/3124 . . . Plural units
- 137/3127 . . . With gas maintenance or application
- 137/313 Gas carried by or evolved from liquid
- 137/3133 Gas injectors
- 137/3137 Gas injected by liquid pressure or flow
- 137/314 Unitary mounting for gas pressure inlet and liquid outlet
- 137/3143 . . . With liquid level responsive gas vent or whistle
- 137/3146 Combined high and low level responsive
- 137/3149 . Back flow prevention by vacuum breaking [e.g., anti-siphon devices]
- 137/3185 . . Air vent in liquid flow line
- 137/3222 . . . With liquid seal in liquid flow line
- 137/3258 Automatic valve in vent line
- 137/3294 . . . Valved
- 137/3331 With co-acting valve in liquid flow path
- 137/3367 . Larner-Johnson type valves; i.e., telescoping internal valve in expanded flow line section
- 137/3421 . . Line condition change responsive
- 137/3476 . . Internal servo-motor with internal pilot valve
- 137/353 . . . Pilot controlled passage in nose or needle
- 137/3584 . Inflatable article [e.g., tire filling chuck and/or stem]
- 137/36 . . . With pressure-responsive pressure-control means
- 137/3615 . . . Pulsating
- 137/3631 . . . Diaphragm, bellows or expansible tube
- 137/3646 . . . Co-axial inflation and relief valves
- 137/3662 . . With gauge or indicator
- 137/3677 . . . With deflating means
- 137/3693 . . . Selectively connected
- 137/3709 . . Stem attached relief valve
- 137/3724 . . With coupling means
- 137/374 . . With cap
- 137/3755 . . . Valve actuating, assembling or locking means on cap
- 137/3771 Valve manually seated
- 137/3786 . . Removable valve head and seat unit [valve insides]
- 137/3802 . With vehicle guide or support, e.g., service station
- 137/402 . Distribution systems involving geographic features
- 137/4238 . With cleaner, lubrication added to fluid or liquid sealing at valve interface
- 137/4245 . . Cleaning or steam sterilizing
- 137/4252 . . . Reverse fluid flow
- 137/4259 . . . With separate material addition
- 137/4266 . . . Steam sterilizing
- 137/4273 . . . Mechanical cleaning
- 137/428 Valve grinding motion of valve on seat
- 137/4287 Concentric stem
- 137/4294 Spring pressed
- 137/4301 Lost motion permits grinding
- 137/4308 With swivel-preventing means
- 137/4315 Nut releasable from body and/or stem
- 137/4322 With independent grinding actuator
- 137/4329 Separable
- 137/4336 Cleaning member reciprocates in passage
- 137/4343 By-pass cleaning
- 137/4351 Independent actuation
- 137/4358 . . Liquid supplied at valve interface
- 137/4365 . . . Plural feed
- 137/4372 . . . Line pressure feed
- 137/4379 . . . Feed by or with actuation
- 137/4386 . . . Loss control
- 137/4393 . . . Screw feed
- 137/44 With check valve
- 137/4407 Excess relief
- 137/4414 Jacking
- 137/4421 Jacking
- 137/4428 Seating
- 137/4435 . . . Spring biased piston feed
- 137/4442 . . . External pressure
- 137/4449 . . . Gravity or capillary feed
- 137/4456 . With liquid valves or liquid trap seals
- 137/4463 . . Liquid seal in liquid flow line; flow liquid forms seal
- 137/4471 Valves
- 137/4478 Line condition change responsive
- 137/4486 Plural valves or valve seats
- 137/4493 Pivoted valve
- 137/4501 Ball valve
- 137/4508 Seats vertically up
- 137/4516 . . . Seal replenishers
- 137/4523 . . . Plural inlet
- 137/4531 . . . Divided and recombined passages
- 137/4538 . . . Tangential inlet flow

- 137/4546 . . . Downward partition encircles projecting outlet
- 137/4553 . . . Submerged inlet pipe end
- 137/4561 Hinged seal bowl
- 137/4568 Distinct seal bowl in flow line connected casing
- 137/4576 . . . U-seals
- 137/4583 Topside access beneath cover plate closed floor opening
- 137/4591 Enlarged upflow leg
- 137/4598 Topside access opening
- 137/4606 Even diameter legs
- 137/4613 Access opening
- 137/4621 . . Seal for relatively movable valving parts
- 137/4628 . . . Horizontally moving valve
- 137/4636 Rotary
- 137/4643 . . Liquid valves
- 137/4651 . . . Branched passage for sealing liquid
- 137/4658 . . . With auxiliary means for varying liquid level
- 137/4666 . . . With baffle
- 137/4673 . Plural tanks or compartments with parallel flow
- 137/469 . . Sequentially filled and emptied [e.g., holding type]
- 137/4707 . . . With relative rotation of tank group and filling head
- 137/4723 With rotary filling and emptying head
- 137/474 . . With housings, supports or stacking arrangements
- 137/4757 . . Battery or electrolytic cell replenishment
- 137/4774 . . . Barometric supply
- 137/479 . . Flow dividing compartments
- 137/4807 . . Tank type manifold [i.e., one tank supplies or receives from at least two others]
- 137/4824 . . Tank within tank
- 137/4841 . . With cross connecting passage
- 137/4857 . . With manifold or grouped outlets
- 137/4874 . . . Tank truck type
- 137/4891 . With holder for solid, flaky or pulverized material to be dissolved or entrained
- 137/5109 . Convertible
- 137/5153 . . Reversible check
- 137/5196 . . Unit orientable in a single location between plural positions
- 137/524 . . . Reversible stop and vent or waste
- 137/5283 . . Units interchangeable between alternate locations
- 137/5327 . Hydrant type
- 137/5333 . . Water crane type
- 137/5339 . . . Spout operated valve
- 137/5345 . . . Rotating riser
- 137/535 Spout articulated to riser
- 137/5356 Vertically movable riser
- 137/5362 . . . Extensible spout
- 137/5368 . . . Spout articulated to riser
- 137/5374 . . Plural riser
- 137/538 . . Expansible chamber operated by valve actuator for draining riser
- 137/5386 . . With pump or ejector
- 137/5392 . . Removable valve and valve seat
- 137/5397 . . . With extension to facilitate removal
- 137/5403 . . Removable valve with supplemental check valve
- 137/5409 . . Movable riser actuated valve
- 137/5415 . . . Reciprocating riser
- 137/5421 Piston type valve
- 137/5427 . . Balanced valve
- 137/5433 . . Valve actuator extends laterally from bottom of riser
- 137/5438 . . Valve actuator outside riser
- 137/5444 . . . Lever actuator
- 137/545 . . . With casing, flush with ground or pavement surface
- 137/5456 . . With casing
- 137/5462 . . . Flush with ground or pavement surface
- 137/5468 . . . Cap, cover or hood
- 137/5474 . . . With heater
- 137/5479 . . With actuator lubricating means
- 137/5485 . . With valve at outlet
- 137/5491 . . With supplemental valve
- 137/5497 . . Protection against freezing
- 137/5503 . . . Stop and waste
- 137/5509 With disabling means
- 137/5515 Separate relatively movable valves with single actuator
- 137/5521 Unidirectional abutting connection between main valve or actuator and waste valve
- 137/5526 With screw or gear in actuating mechanism
- 137/5532 Reciprocating relatively fixed valves
- 137/5538 Waste through lower valve guide
- 137/5544 . Reversing valves - regenerative furnace type
- 137/5617 . . With cooling
- 137/5689 . . Rotary reversing valve
- 137/5762 . With leakage or drip collecting
- 137/5835 . . Relatively movable receptacle or drain pipe and outlet
- 137/5907 . . Collector for waste liquid derived from solid, gas or vapor
- 137/598 . With repair, tapping, assembly, or disassembly means
- 137/5983 . . Blow out preventer or choke valve device [e.g., oil well flow controlling device, etc.]
- 137/5987 . . Solenoid or electromagnetically operated valve
- 137/599 . . Pressure regulating type valve
- 137/5994 . . . Diaphragm type
- 137/5997 . . Gas or water meter replacing
- 137/60 . . Assembling or disassembling flexible tube or sleeve type valve
- 137/6004 . . Assembling or disassembling float or float valve
- 137/6007 . . Assembling or disassembling multi way valve
- 137/6011 . . Assembling, disassembling, or removing cartridge type valve [e.g., insertable and removable as a unit, etc.]
- 137/6014 . . . Faucet type [e.g., domestic water use, etc.]
- 137/6017 Including removable valve head and seat unit
- 137/6021 Including mechanical movement actuator
- 137/6024 Particular handle or handle fastening means
- 137/6028 . . Assembling or disassembling pivoted valve
- 137/6031 . . Assembling or disassembling rotary valve
- 137/6035 . . . Rotary ball valve
- 137/6038 Particular valve seat or interface seal
- 137/6041 Replaceable
- 137/6045 With top entry valve
- 137/6048 . . . Butterfly valve
- 137/6052 Having valve head or seat packing
- 137/6055 With head and stem collections
- 137/6058 . . . Plug valve

- 137/6062 Having retainer at actuator end
- 137/6065 . . Assembling or disassembling reciprocating valve
- 137/6069 . . . Having particularly packed or sealed mechanical movement actuator
- 137/6072 . . . Gate valve
- 137/6075 Bifaced
- 137/6079 Having particular valve seat
- 137/6082 Including seal
- 137/6086 . . Assembling or disassembling check valve
- 137/6089 . . With mechanical movement between actuator and valve
- 137/6092 . . . Plural motions of valve
- 137/6096 . . . Lever type
- 137/6099 . . . Gear type
- 137/6103 . . . Cam type
- 137/6106 . . . Screw type
- 137/6109 . . Tool for applying or removing valve or valve member
- 137/6113 . . . Including sealing feature
- 137/6116 . . With holding means functioning only during transportation assembly or disassembly
- 137/612 . . Tapping a pipe, keg, or apertured tank under pressure
- 137/6123 . . . With aperture forming means
- 137/6126 . . . Imperforate closure removing and holding tap
- 137/613 . . . With valved closure or bung
- 137/6133 Combined rotary and longitudinal movement of valve
- 137/6137 Longitudinal movement of valve
- 137/614 Rotary movement of valve
- 137/6144 . . . With core ejectors
- 137/6147 Impact operated
- 137/615 . . Foot valve extraction from top of enclosure
- 137/6154 . . With disassembly tool engaging feature
- 137/6157 . . . Wrench engaging lugs
- 137/6161 . . With provision of alternate wear parts
- 137/6164 . . . Valve heads and/or seats
- 137/6167 Opposite duplicate surfaces of unitary structure
- 137/6171 Homogeneous material
- 137/6174 Valve heads
- 137/6178 Different portions of continuous surfaces
- 137/6181 Successively used adjacent independent elements
- 137/6184 . . Removable valve with normally disabled supplemental check valve
- 137/6188 . . . Check valve disabled by normally movable main valve part
- 137/6191 Ball check
- 137/6195 Spring bias
- 137/6198 . Non-valving motion of the valve or valve seat
- 137/6253 . . Rotary motion of a reciprocating valve
- 137/6307 . . . Turbine on valve
- 137/6362 . . . Manual rotating means
- 137/6416 . With heating or cooling of the system
- 137/6443 . . With burner
- 137/647 . . . Flue extending through fluid
- 137/6497 . . Hot and cold water system having a connection from the hot to the cold channel
- 137/6525 . . Air heated or cooled [fan, fins, or channels]
- 137/6552 . . With diversion of part of fluid to heat or cool the device or its contents
- 137/6579 . . Circulating fluid in heat exchange relationship
- 137/6606 . . With electric heating element
- 137/6633 . . With fluid system support for workman or non-system material
- 137/6851 . . With casing, support, protector or static constructional installations
- 137/6855 . . Vehicle
- 137/6858 . . . Locomotive
- 137/6862 Boiler or steam dome
- 137/6866 . . . Railway car
- 137/6869 Car frame
- 137/6873 End of car
- 137/6877 Roof, wall or floor
- 137/6881 . . . Automotive
- 137/6884 Steering post or wheel
- 137/6888 Dash
- 137/6892 Floor or frame
- 137/6895 Fender or running board
- 137/6899 . . . With hose reel storage means
- 137/6903 . . . Guided by means of track or guideway
- 137/6906 . . . Aerial or water-supported [e.g., airplane or ship, etc.]
- 137/691 . . . With retractable or nonuse-positionable support wheel
- 137/6914 . . . Vehicle supports fluid compressor and compressed fluid storage tank
- 137/6918 . . With hose storage or retrieval means
- 137/6921 . . . With means for plural hoses
- 137/6925 . . . With flow regulation responsive to hose movement
- 137/6929 Reel type
- 137/6932 . . . With retrieval means
- 137/6936 Power stop or brake
- 137/694 Responsive to position of hose in casing
- 137/6943 Biased to retracted position
- 137/6947 Boom type
- 137/6951 Weighted
- 137/6954 . . . Reel with support therefor
- 137/6958 Ground supported
- 137/6962 . . . Basket or holder for folded coiled hose
- 137/6966 . . Static constructional installations
- 137/6969 . . . Buildings
- 137/6973 Outside access to portions of the system
- 137/6977 Escutcheon type support
- 137/698 Wall
- 137/6984 Recessed gas outlet box
- 137/6988 Floor installation
- 137/6991 . . . Ground supporting enclosure
- 137/6995 Valve and meter wells
- 137/6999 With means to center well on valve
- 137/7002 Detachable base plate
- 137/7006 Vertical casing aligned by valve casing
- 137/701 Combined with actuator
- 137/7014 Telescopic well casing
- 137/7017 Telescopic well casing
- 137/7021 Covers
- 137/7025 Pipe line transport
- 137/7028 . . . Tapering or tower type
- 137/7032 . . Furniture and housing furnishings
- 137/7036 . . Jacketed
- 137/7039 . . Tank supports
- 137/7043 . . Guards and shields

137/7047	. . . Resilient abutment for preventing breakage	137/7426	. . . . Float co-axial with valve or port
137/7051	. . . Nozzle abutment for scratch or damage prevention	137/743	. . . . . Float is spreader or anti-splash means
137/7054	. . . Cover for beer cooler aperture for faucet	137/7433	. . . . . Float surrounds inlet pipe
137/7058	. . . Sanitary covers or shields	137/7436	. . . . . Float rigid with valve
137/7062	. . . Valve guards	137/7439	. . . . . Float arm operated valve
137/7065	. . . . With means for accommodating a detachable actuator	137/7442	. . . . . With valve retarder or cushion means
137/7069	. With lock or seal	137/7446	. . . . . With flow guide or restrictor
137/71	. . With seal	137/7449	. . . . . External hood or deflector or annular outlet surrounding the inlet pipe
137/7131	. . Common lock and valve actuator	137/7452	. . . . . Movable nozzle or inlet terminal
137/7162	. . . Combination lock	137/7455	. . . . . Valve removable from outside container
137/7194	. . . Biased valve	137/7459	. . . . . With U-shaped inlet pipe having terminal valve
137/7225	. . . Mechanical movement between lock and valve	137/7462	. . . . . With refill pipe
137/7256	. . Locks against rotary motion	137/7465	. . . . . Assembly mounted on and having reciprocating valve element coaxial with inlet pipe
137/7287	. Liquid level responsive or maintaining systems	137/7468	. . . . . Horizontal or side entering pipe
137/729	. . Washing machine cycle control	137/7472	. . . . . Vertical inlet riser
137/7293	. . Liquid excluding devices for gas inlet or outlets	137/7475	. . . . . With toggle or second lever connected to valve
137/7297	. . With second diverse control	137/7478	. . . . . With interposed cam, gear or threaded connection
137/73	. . . Manual control	137/7481	. . . . . Rotary valve element
137/7303	. . Control of both inflow and outflow of tank	137/7485	. . . . . Pivoted valve
137/7306	. . Electrical characteristic sensing	137/7488	. . . . . Ball valves
137/731	. . With control fluid connection at desired liquid level	137/7491	. . . . . Balanced valves
137/7313	. . Control of outflow from tank	137/7494	. . . . . Flexible valve
137/7316	. . . Self-emptying tanks	137/7498	. . Barometric
137/7319	. . . . By float	137/7501	. . . With shut-off between supply tank and receiver
137/7323	. . . By float	137/7504	. Removable valve head and seat unit
137/7326	. . . . Low level safety cut-off	137/7559	. . Pump type
137/7329	. . With supplemental or safety closing means or bias	137/7613	. . Threaded into valve casing
137/7332	. . . Sinking or bucket type float	137/7668	. . Retained by bonnet or closure
137/7336	. . . Gravitating tank	137/7722	. Line condition change responsive valves
137/7339	. . By weight of accumulated fluid	137/7723	. . Safety cut-off requiring reset
137/7342	. . . In sinking or bucket type float	137/7724	. . . Thermal
137/7345	. . . Oil burner fuel overflow preventing safety cut-offs	137/7725	. . . Responsive to both high and low pressure or velocity
137/7349	. . . In communicating measuring vessel	137/7726	. . . Responsive to change in rate of flow
137/7352	. . . . Top and bottom connections	137/7727	. . . . Excessive flow cut-off
137/7355	. . . In gravitating tank	137/7728	. . . High pressure cut-off
137/7358	. . By float controlled valve	137/7729	. . . Reset by pressure equalization valve or by-pass
137/7361	. . . Valve opened by external means, closing or closing control by float	137/773	. . . Fluid released trip
137/7365	. . . Single float controls plural valves	137/7731	. . . Fluid counter-biased or unseated valve
137/7368	. . . Servo relay operation of control	137/7732	. . . . With mechanical stop against reopening
137/7371	. . . . Fluid pressure	137/7733	. . . . With fluid pressure seating of valve
137/7374	. . . . . Flexible diaphragm valve	137/7734	. . Fluid opened valve requiring reset
137/7378	. . . . . From tank	137/7736	. . Consistency responsive
137/7381	. . . Quick acting	137/7737	. . Thermal responsive
137/7384	. . . . Pilot float released	137/7738	. . Pop valves
137/7387	. . . . Over center mechanism	137/7739	. . . Pop closing valves
137/7391	. . . . . Shifting weight	137/774	. . . Pop pressure reactor in inflow to valve
137/7394	. . . . . Trip mechanism	137/7741	. . . Pop pressure reactor in branched released path
137/7397	. . . . . Weight or spring bias	137/7742	. . . . Separate relief valves or valves for each branch
137/74	. . . . Lost motion mechanism	137/7743	. . . Lost motion between pop pressure reactor and valve
137/7404	. . . Plural floats	137/7744	. . . Adjustable choke
137/7407	. . . With counter-balance	137/7745	. . . . Annular lip or baffle
137/741	. . . . Within tank	137/7746	. . . . . On movable valve part
137/7413	. . . Level adjustment or selection means	137/7747	. . . . . Screw threaded
137/7417	. . . With float leakage disposal		
137/742	. . . In separate communicating float chamber		
137/7423	. . . Rectilinearly traveling float		

137/7748	. . . . .	Combustion engine induction type	137/7805	. . . . .	Through external pipe
137/7749	. . . . .	Valve in auxiliary inlet to induction line	137/7806	. . . . .	Modified valve casing
137/775	. . . . .	With manual modifier	137/7807	. . . . .	Adjustable external lever
137/7751	. . . . .	With suction compensator	137/7808	. . . . .	Apertured reactor surface surrounds flow line
137/7752	. . . . .	With separate reactor surface	137/7809	. . . . .	Reactor surface separated by apertured partition
137/7753	. . . . .	Unbalanced pivoted valve [e.g., unbalanced butterfly type]	137/781	. . . . .	In valve stem
137/7754	. . . . .	Line flow effect assisted	137/7811	. . . . .	Also through reactor surface
137/7755	. . . . .	Reactor surface normal to flow	137/7812	. . . . .	Valve stem passes through the aperture
137/7756	. . . . .	Reactor surface separated from flow by apertured partition	137/7813	. . . . .	Plural reactor surfaces
137/7757	. . . . .	Through separate aperture	137/7814	. . . . .	Reactor is an inverted cup having liquid seal
137/7758	. . . . .	Pilot or servo controlled	137/7815	. . . . .	With movement dampener
137/7759	. . . . .	Responsive to change in rate of fluid flow	137/7816	. . . . .	Valve head in inlet chamber
137/776	. . . . .	Control by pressures across flow line valve	137/7818	. . . . .	Valve head in inlet chamber
137/7761	. . . . .	Electrically actuated valve	137/7819	. . . . .	Rectilinear valve stem rigid with reactor surface
137/7762	. . . . .	Fluid pressure type	137/782	. . . . .	Reactor surface is diaphragm
137/7764	. . . . .	Choked or throttled pressure type	137/7821	. . . . .	With valve closing bias
137/7765	. . . . .	Pilot valve within main valve head	137/7822	. . . . .	Reactor surface closes chamber
137/7766	. . . . .	Choked passage through main valve head	137/7823	. . . . .	Valve head in inlet chamber
137/7767	. . . . .	Loose fitting piston	137/7824	. . . . .	Reactor surface is inverted cup [float]
137/7768	. . . . .	Pilot controls supply to pressure chamber	137/7825	. . . . .	Rectilinear valve stem rigid with reactor surface
137/7769	. . . . .	Single acting fluid servo	137/7826	. . . . .	With valve closing bias
137/777	. . . . .	Spring biased	137/7827	. . . . .	In reactor chamber
137/7771	. . . . .	Bi-directional flow valves	137/7828	. . . . .	Valve head on yoke
137/7772	. . . . .	One head and seat carried by head of another	137/7829	. . . . .	Yoke has valve closing bias
137/7773	. . . . .	Supporting valve only spring biased	137/783	. . . . .	Reactor operatively connected to valve by mechanical movement
137/7774	. . . . .	Supporting valve spring carried by supporting valve	137/7831	. . . . .	With mechanical movement between actuator and valve
137/7775	. . . . .	Spring stop on supported valve stem	137/7832	. . . . .	Plural valves biased closed
137/7776	. . . . .	Spring abuts guide for supported valve stem	137/7833	. . . . .	With means for mounting or connecting to system
137/7777	. . . . .	Both valves spring biased	137/7834	. . . . .	Valve seat or external sleeve moves to open valve
137/7778	. . . . .	Axes of ports perpendicular	137/7835	. . . . .	Valve seating in direction of flow
137/7779	. . . . .	Axes of ports parallel	137/7836	. . . . .	Flexible diaphragm or bellows reactor
137/778	. . . . .	Axes of ports co-axial	137/7837	. . . . .	Direct response valves [i.e., check valve type]
137/7781	. . . . .	With separate connected fluid reactor surface	137/7838	. . . . .	Plural
137/7782	. . . . .	With manual or external control for line valve	137/7839	. . . . .	Dividing and recombining in a single flow path
137/7783	. . . . .	Valve closes in responses to reverse flow	137/784	. . . . .	Integral resilient member forms plural valves
137/7784	. . . . .	Responsive to change in rate of fluid flow	137/7841	. . . . .	One valve carries head and seat for second valve
137/7785	. . . . .	Valve closes in response to excessive flow	137/7842	. . . . .	Diverse types
137/7786	. . . . .	Turbine or swinging vane type reactor	137/7843	. . . . .	Integral resilient member forms plural valves
137/7787	. . . . .	Expansible chamber subject to differential pressures	137/7845	. . . . .	With common biasing means
137/7788	. . . . .	Pressures across fixed choke	137/7846	. . . . .	Mechanically interconnected
137/7789	. . . . .	With Venturi tube having a connection to throat	137/7847	. . . . .	With leak passage
137/7791	. . . . .	Pressures across flow line valve	137/7848	. . . . .	Permits flow at valve interface
137/7792	. . . . .	Movable deflector or choke	137/7849	. . . . .	Bypass in valve casing
137/7793	. . . . .	With opening bias [e.g., pressure regulator]	137/785	. . . . .	With retarder or dashpot
137/7794	. . . . .	With relief valve	137/7851	. . . . .	End of valve forms dashpot chamber
137/7795	. . . . .	Multi-stage	137/7852	. . . . .	End of valve moves inside dashpot chamber
137/7796	. . . . .	Senses inlet pressure	137/7853	. . . . .	Enlarged piston on end of valve stem
137/7797	. . . . .	Bias variable during operation	137/7854	. . . . .	In couplings for coaxial conduits, e.g., drill pipe check valves
137/7798	. . . . .	Ancillary reactor surface responds to inlet pressure	137/7855	. . . . .	Valve seat threaded into a coupling element
137/7799	. . . . .	Liquid transfer			
137/78	. . . . .	Weight			
137/7801	. . . . .	Balanced valve			
137/7802	. . . . .	Liquid level responsive gas flow control			
137/7803	. . . . .	With protective separator			
137/7804	. . . . .	Main flow through isolated reactor chamber			

137/7856	. . . . Valve seat formed on or carried by a coupling element	137/7919	. . . . . Guide and seat integral unit
137/7857	. . . . Valve seat clamped between coupling elements	137/792	. . . . . Guide and closure integral unit
137/7858	. . . . With means for selecting area of valve or seat	137/7921	. . . . . Weight coaxial with valve
137/7859	. . . . Single head, plural ports in parallel	137/7922	. . . . . Spring biased
137/786	. . . . Concentric ports	137/7923	. . . . . With means to protect spring from fluid
137/7861	. . . . Annular head	137/7924	. . . . . Spring under tension
137/7862	. . . . . Central post on seat	137/7925	. . . . . Piston-type valves
137/7863	. . . . . Stop	137/7927	. . . . . Ball valves
137/7864	. . . . . With guide	137/7928	. . . . . With follower
137/7865	. . . . . Guide	137/7929	. . . . . Spring coaxial with valve
137/7866	. . . . Plural seating	137/793	. . . . . Broken valve parts retainer
137/7867	. . . . Sequential	137/7931	. . . . . Spring in inlet
137/7868	. . . . Resilient gasket	137/7932	. . . . . Valve stem extends through fixed spring abutment
137/7869	. . . . Biased open	137/7933	. . . . . Yoke or cage-type support for valve stem
137/787	. . . . Oppositely swinging vanes	137/7934	. . . . . Spring abuts removable valve stem guide
137/7871	. . . . Weight biased	137/7935	. . . . . Head slides on guide-rod concentric with spring
137/7873	. . . . . Ball valves	137/7936	. . . . . Spring guides valve head
137/7874	. . . . . Edge pivoted valve	137/7937	. . . . . Cage-type guide for stemless valves
137/7875	. . . . Pivoted valves	137/7938	. . . . . Guide means integral and coplanar with valve disk
137/7876	. . . . With external means for opposing bias	137/7939	. . . . . Head between spring and guide
137/7877	. . . . With means for retaining external means in bias opposing position	137/794	. . . . . With means for separating solid material from the fluid
137/7878	. . . . With bias adjustment indicator	137/7976	. . . . Plural separating elements
137/7879	. . . . Resilient material valve	137/8013	. . . . Sediment chamber
137/788	. . . . Having expansible port	137/8049	. . . . Movable strainer
137/7881	. . . . . Apertured plate	137/8085	. . . . Hollow strainer, fluid inlet and outlet perpendicular to each other
137/7882	. . . . . Having exit lip	137/8122	. . . . Planar strainer normal to flow path
137/7883	. . . . . With biasing means	137/8158	. . . . With indicator, register, recorder, alarm or inspection means
137/7884	. . . . . Side vent	137/8175	. . . . Plural
137/7885	. . . . . Multiple slit	137/8192	. . . . Unobvious - "combination lock" type
137/7886	. . . . . Internally extending mount	137/8208	. . . . Time
137/7887	. . . . Center flexing strip	137/8225	. . . . Position or extent of motion indicator
137/7888	. . . . With valve member flexing about securement	137/8242	. . . . Electrical
137/7889	. . . . . Sleeve	137/8259	. . . . Selection from plural branches
137/789	. . . . . Central mount	137/8275	. . . . Indicator element rigidly carried by the movable element whose position is indicated
137/7891	. . . . . Flap or reed	137/8292	. . . . Movable indicator element is a pointer
137/7892	. . . . . With stop	137/8309	. . . . . Pointer integral with handle
137/7897	. . . . Vacuum relief type	137/8326	. . . . Fluid pressure responsive indicator, recorder or alarm
137/7898	. . . . Pivoted valves	137/8342	. . . . Liquid level responsive indicator, recorder or alarm
137/79	. . . . Head retained by removable closure	137/8359	. . . . Inspection means
137/7901	. . . . Valve head movably connected for accommodation to seat	137/8376	. . . . Combined
137/7902	. . . . Valve mounted on end of pipe	137/8593	. . . . Systems
137/7903	. . . . Weight biased	137/85938	. . . . Non-valved flow dividers
137/7904	. . . . Reciprocating valves	137/85946	. . . . Faucet connected, sink drained
137/7905	. . . . Plural biasing means	137/85954	. . . . Closed circulating system
137/7906	. . . . Cam means for adjusting and fixing bias	137/85962	. . . . With thermal circulating means [thermo-siphons]
137/7907	. . . . Varying effective lever arm	137/8597	. . . . Main line as motive fluid for follower-type feeder
137/7908	. . . . Weight biased	137/85978	. . . . With pump
137/7909	. . . . Valve body is the weight	137/85986	. . . . Pumped fluid control
137/791	. . . . . Ball valves	137/85994	. . . . Manual
137/7911	. . . . . Removable cage	137/86002	. . . . Fluid pressure responsive
137/7912	. . . . . Separable seat		
137/7913	. . . . . Guided head		
137/7914	. . . . . Cage		
137/7915	. . . . . Guide stem		
137/7916	. . . . . With closing stop		
137/7917	. . . . . Oppositely disposed		
137/7918	. . . . . Head slidable on guide rod		

137/8601	And pilot valve	137/86429	Attachable and removable element
137/86019	Direct response valve	137/86437	Adjustable cam
137/86027	Electric	137/86445	Plural, sequential, valve actuations
137/86035	Combined with fluid receiver	137/86453	Plural trips or trip actuations
137/86043	Reserve or surge receiver	137/86461	Variable cycle
137/86051	Compressed air supply unit	137/86469	Clock alarm mechanism controlled
137/86059	Hydraulic power unit	137/86477	Biased latch, cam operated
137/86067	Fluid sump	137/86485	Line condition change responsive release of valve
137/86075	And jet-aspiration type pump	137/86493	Multi-way valve unit
137/86083	Vacuum pump	137/86501	Sequential distributor or collector type
137/86091	Resiliently mounted pump	137/86509	Sequentially progressive opening or closing of plural ports
137/86099	Hand pump	137/86517	With subsequent closing of first port
137/86107	Multiple inlet with multiple outlet	137/86525	Flow combining with flow dividing
137/86115	Downstream cyclic distributor	137/86533	Rotary
137/86123	Distributor part unitary with movable pump part	137/86541	Plug
137/86131	Plural	137/86549	Selective reciprocation or rotation
137/86139	Serial	137/86558	Plural noncommunicating flow paths
137/86147	With single motive input	137/86566	Rotary plug
137/86155	One pump driven by motive fluid from the other	137/86574	Supply and exhaust
137/86163	Parallel	137/86582	Pilot-actuated
137/86171	With pump bypass	137/8659	Variable orifice-type modulator
137/86179	Drain valve actuator mounted on pump	137/86598	Opposed orifices; interposed modulator
137/86187	Plural tanks or compartments connected for serial flow	137/86606	Common to plural valve motor chambers
137/86196	Separable with valved-connecting passage	137/86614	Electric
137/86204	Fluid progresses by zigzag flow	137/86622	Motor-operated
137/86212	Plural compartments formed by baffles	137/8663	Fluid motor
137/8622	Plural top-to-bottom connected tanks	137/86638	Rotary valve
137/86228	With communicating opening in common walls of tanks or compartments	137/86646	Plug type
137/86236	Tank with movable or adjustable outlet or overflow pipe	137/86654	For plural lines
137/86244	Horizontally traversing outlet	137/86662	Axial and radial flow
137/86252	Float-supported outlet	137/8667	Reciprocating valve
137/8626	Swinging outlet pipe or spout	137/86678	Combined disk or plug and gate or piston
137/86268	With running joint between movable parts of system	137/86686	Plural disk or plug
137/86276	Movable tank	137/86694	Piston valve
137/86284	With antispash means not in flow passage	137/86702	With internal flow passage
137/86292	System with plural openings, one a gas vent or access opening	137/8671	With annular passage [e.g., spool]
137/863	Access and outlet	137/86718	Dividing into parallel flow paths with recombining
137/86308	Tank access opening and bottom outlet	137/86726	Valve with bypass connections
137/86316	Access opening interlock or telltale on outlet valve actuator	137/86734	With metering feature
137/86324	Tank with gas vent and inlet or outlet	137/86743	Rotary
137/86332	Vent and inlet or outlet in unitary mounting	137/86751	Plug
137/8634	With vented outlet	137/86759	Reciprocating
137/86348	Tank with internally extending flow guide, pipe or conduit	137/86767	Spool
137/86356	Nondraining overflow type	137/86775	With internal passage
137/86364	Inverted "U" passage	137/86783	Unequal heads
137/86372	Inlet internally extending	137/86791	Piston
137/86381	Head-establishing standpipe or expansion chamber [e.g., surge tanks]	137/86799	With internal flow passage
137/86389	Programmer or timer	137/86807	Sequential opening or closing of serial ports in single flow line
137/86397	With independent valve controller	137/86815	Multiple inlet with single outlet
137/86405	Repeating cycle	137/86823	Rotary valve
137/86413	Self-cycling	137/86831	Selective opening of plural ports
137/86421	Variable	137/86839	Four port reversing valves
		137/86847	Pivoted valve unit
		137/86855	Gate
		137/86863	Rotary valve unit
		137/86871	Plug
		137/86879	Reciprocating valve unit
		137/86887	Combined disk or plug and gate or piston

- 137/86895 Plural disk or plug
- 137/86903 . . Plural petcocks
- 137/86911 . . Sequential distributor or collector type
- 137/86919 . . Sequentially closing and opening alternately seating flow controllers
- 137/86928 . . Sequentially progressive opening or closing of plural valves
- 137/86936 . . . Pressure equalizing or auxiliary shunt flow
- 137/86944 One valve seats against other valve [e.g., concentric valves]
- 137/86952 Locomotive throttle
- 137/8696 Gate
- 137/86968 With balancing chamber
- 137/86976 First valve moves second valve
- 137/86984 Actuator moves both valves
- 137/86992 . . . With subsequent closing of first opened port
- 137/87 Simultaneously moved port controllers
- 137/87008 . . . Screw-actuated differential valves
- 137/87016 . . . Lost motion
- 137/87024 Cam determines sequence
- 137/87032 Rotary concentric valves
- 137/8704 First valve actuates second valve
- 137/87048 . . With preselecting means for plural valve actuator
- 137/87056 . . With selective motion for plural valve actuator
- 137/87064 . . . Oppositely movable cam surfaces
- 137/87072 . . . Rotation about either of two pivotal axes
- 137/8708 . . . Rotation of actuator arm about its pivot and its axis
- 137/87088 . . . Reciprocation along and rotation about same axis
- 137/87096 . . Valves with separate, correlated, actuators
- 137/87105 . . . Correlated across separable flow path joint
- 137/87113 . . . Interlocked
- 137/87121 . . . Coaxial stems
- 137/87129 Rotary
- 137/87137 And reciprocating
- 137/87145 Concentric, central valve removable
- 137/87153 . . Plural noncommunicating flow paths
- 137/87161 . . . With common valve operator
- 137/87169 . . Supply and exhaust
- 137/87177 . . . With bypass
- 137/87185 Controlled by supply or exhaust valve
- 137/87193 . . . Pilot-actuated
- 137/87201 Common to plural valve motor chambers
- 137/87209 Electric
- 137/87217 . . . Motor
- 137/87225 Fluid motor
- 137/87233 . . . Biased exhaust valve
- 137/87241 Biased closed
- 137/87249 . . Multiple inlet with multiple outlet
- 137/87257 . . Hydraulic brake line [e.g., hill holders]
- 137/87265 . . Dividing into parallel flow paths with recombining
- 137/87273 . . . With fluid coupling [e.g., railway car hose coupling, truck-trailer oil system coupling, etc.]
- 137/87281 . . . System having plural inlets
- 137/8729 Having digital flow controller
- 137/87298 . . . Having digital flow controller
- 137/87306 Having plural branches under common control for separate valve actuators
- 137/87314 Electromagnetic or electric control [e.g., digital control, bistable electro control, etc.]
- 137/87322 . . . With multi way valve having serial valve in at least one branch
- 137/8733 . . . Fluid pressure regulator in at least one branch
- 137/87338 . . . Flow passage with bypass
- 137/87346 Including mixing feature
- 137/87354 Including flowmeter
- 137/87362 Including cleaning, treating, or heat transfer feature
- 137/8737 Water treatment feature
- 137/87378 . . . Second valve assembly carried by first valve head
- 137/87386 With rotary plug having variable restrictor
- 137/87394 Carried valve is direct response valve [e.g., check valve, etc.]
- 137/87402 . . . With foam controlling means [e.g., beer, soda faucets]
- 137/8741 . . . With common operator
- 137/87418 Balanced valve
- 137/87426 Single resilient member actuates or forms plural passages
- 137/87434 Valves deform to close passage
- 137/87442 Rotary valve
- 137/8745 Including rigid plate with flexible or resilient seal
- 137/87458 Axes of rotation of valves intersect at point
- 137/87467 Axes of rotation parallel
- 137/87475 Adjacent plate valves always parallel
- 137/87483 Adjacent plate valves counter rotate
- 137/87491 Mechanical movement between actuator and non-rotary valve
- 137/87499 . . . Fluid actuated or retarded
- 137/87507 . . . Electrical actuator
- 137/87515 . . . Mechanical movement between actuator and valve
- 137/87523 . . . Rotary valve
- 137/87531 Butterfly valve
- 137/87539 . . . Having guide or restrictor
- 137/87547 Manually variable
- 137/87555 . . . Having direct response valve [e.g., check valve, etc.]
- 137/87563 With reverse flow direction
- 137/87571 . . Multiple inlet with single outlet
- 137/87579 . . . Faucet attachment
- 137/87587 . . . Combining by aspiration
- 137/87595 Combining of three or more diverse fluids
- 137/87603 Plural motivating fluid jets
- 137/87611 Flow control by varying position of a fluid inlet relative to entrainment chamber
- 137/87619 With selectively operated flow control means in inlet
- 137/87627 Flow control means is located in aspirated fluid inlet
- 137/87635 Single actuator operates flow control means located in both motivating fluid and aspirated fluid inlets
- 137/87643 With condition responsive valve
- 137/87652 . . . With means to promote mixing or combining of plural fluids
- 137/8766 With selectively operated flow control means

137/87668 Single actuator operates plural flow control means
 137/87676 With flow control
 137/87684 Valve in each inlet
 137/87692 With common valve operator
 137/877 With flow control means for branched passages
 137/87708 With common valve operator
 137/87716 For valve having a flexible diaphragm valving member
 137/87724 For valve having a ball head
 137/87732 With gearing
 137/8774 Threaded actuator
 137/87748 Pivoted or rotary motion converted to reciprocating valve head motion
 137/87756 Spring biased
 137/87764 Having fluid actuator
 137/87772 With electrical actuation
 137/8778 Spring biased
 137/87788 With valve or movable deflector at junction
 137/87796 Movable deflector spout in lateral port
 137/87804 Valve or deflector is tubular passageway
 137/87812 Pivoted valve or deflector
 137/8782 Rotary valve or deflector
 137/87829 Biased valve
 137/87837 Spring bias
 137/87845 For valve having a ball head
 137/87853 With threaded actuator
 137/87861 Spring coaxial with valve
 137/87869 Biased open
 137/87877 Single inlet with multiple distinctly valved outlets
 137/87885 Sectional block structure
 137/87893 With fluid actuator
 137/87901 With threaded actuator
 137/87909 Containing rotary valve
 137/87917 Flow path with serial valves and/or closures
 137/87925 Separable flow path section, valve or closure in each
 137/87933 Common joint and valve seat faces, or sections joined by closing members
 137/87941 Each valve and/or closure operated by coupling motion
 137/87949 Linear motion of flow path sections operates both
 137/87957 Valves actuate each other
 137/87965 Valve- or closure-operated by coupling motion
 137/87973 Coupling interlocked with valve, or closure or actuator
 137/87981 Common actuator
 137/87989 Delivery cock with terminal valve
 137/87997 Alternately seating
 137/88005 Biased valve
 137/88014 Opposed screw
 137/88022 One valve head provides seat for other head
 137/8803 Also carries head of other valve
 137/88038 One valve head carries other valve head
 137/88046 Biased valve with external operator
 137/88054 Direct response normally closed valve limits direction of flow
 137/88062 Coaxial oppositely directed seats
 137/8807 Articulated or swinging flow conduit

137/88078 Actuates valve
 137/88086 Plural motions of valve
 137/88094 Reciprocating valve
 137/88102 Rotary valve
 137/8811 Frangible
 137/9029 With coupling
 137/9138 Flexible
 137/9247 With closure
 137/9464 Faucets and spouts
 137/9682 Miscellaneous

Former US Class 152 Series

152/00 Resilient tires and wheels
 152/10 Tires, resilient
 152/10009 Emergency
 152/10018 with splash guards
 152/10027 with wear indicating feature
 152/10036 Cushion and pneumatic combined
 152/10045 Metallic spring cushion
 152/10054 Enclosed cushion
 152/10063 Superimposed
 152/10072 Plungers
 152/10081 Edge-secured cushion
 152/1009 Guide flanges
 152/10099 Radial stops
 152/10108 Bolts or studs
 152/10117 Integral
 152/10126 with removable inner tube
 152/10135 Armored
 152/10144 Single tube tires internal
 152/10153 Metal
 152/10162 Plates
 152/10171 Casing construction
 152/1018 Embedded
 152/10189 Metal
 152/10198 Plates
 152/10207 Annular
 152/10216 Linked mat
 152/10225 Woven
 152/10234 Interliners
 152/10243 Cotton, fabric, or rubber
 152/10252 Metal
 152/10261 Scale armor
 152/1027 Annular
 152/10279 Cushion
 152/10288 Sectional
 152/10297 Annular
 152/10306 Superimposed
 152/10315 Superimposed
 152/10324 with apertured external binders
 152/10333 Radial bolt secured
 152/10342 Abutting sections
 152/10351 with annular internal binders
 152/1036 Interfitting
 152/10369 Indented at joints
 152/10378 Casing enclosed core
 152/10387 Separate core
 152/10396 Removable
 152/10405 Sponge rubber
 152/10414 with core compression
 152/10423 Superimposed rings

152/10432 Sectional transversely
 152/10441 Balls
 152/1045 Integral structure
 152/10459 Recessed
 152/10468 Chambered
 152/10477 Perforated
 152/10486 Chambered
 152/10495 . . Pneumatic tire or inner tube
 152/10504 . . . Asymmetric tire
 152/10513 . . . Tire reinforcement material characterized by short length fibers or the like
 152/10522 . . . Multiple chamber
 152/10531 Cylinder and piston
 152/1054 Mutually free walls
 152/10549 Interfitting
 152/10558 Balls
 152/10567 with simultaneous inflating means
 152/10576 Annular chambers
 152/10585 with simultaneous inflating means
 152/10594 Mutually free walls
 152/10603 with simultaneous inflating means
 152/10612 with simultaneous inflating means
 152/10621 . . . Sectional casings
 152/1063 Circumferential
 152/10639 Rigid inner sections
 152/10648 . . . with means restricting relative movement between tire and inner tube [e.g., anti-creep feature, etc.]
 152/10657 . . . with means to protect inner tube from rim
 152/10666 . . . Automatic sealing of punctures [e.g., self-healing, etc.]
 152/10675 Using flowable coating or composition
 152/10684 On inner surface of tubeless tire
 152/10693 Sealant in plural layers or plural pockets
 152/10702 within or part of construction of inflating inner tube
 152/10711 Sealant in plural layers or plural pockets
 152/1072 by compression
 152/10729 with reinflating means
 152/10738 . . . with means to protect tire from rim
 152/10747 . . . Means other than rim closing the tire opening
 152/10756 Positive casing closure
 152/10765 . . . Characterized by belt or breaker structure
 152/10774 Consisting of only one ply
 152/10783 Reinforcing plies made up from wound narrow ribbons
 152/10792 Structure where each bias angle reinforcing cord ply has no opposingly angled ply
 152/10801 Structure made up of two or more sets of plies wherein the reinforcing cords in one set lie in a different angular position relative to those in other sets
 152/1081 Breaker or belt characterized by the chemical composition or physical properties of elastomer or the like
 152/10819 . . . Characterized by the structure of the bead portion of the tire
 152/10828 Chafer or sealing strips
 152/10837 Bead characterized by the radial extent of apex, flipper or chafer into tire sidewall
 152/10846 Bead characterized by the chemical composition and or physical properties of elastomers or the like

152/10855 . . . Characterized by the carcass, carcass material, or physical arrangement of the carcass materials
 152/10864 Sidewall stiffening or reinforcing means other than main carcass plies or foldups thereof about beads
 152/10873 with two or more differing cord materials
 152/10882 . . Patches
 152/10891 . . . Mechanically secured
 152/109 Inside and outside, bolt connected
 152/10909 . . . with plugs
 152/10918 . . . Bandages
 152/10927 Mechanically secured
 152/10936 to felly or rim

Former US Class 156 Series

156/00 Adhesive bonding and miscellaneous chemical manufacture
 156/10 . . Methods of surface bonding and/or assembly therefor
 156/1002 . . with permanent bending or reshaping or surface deformation of self sustaining lamina
 156/1003 . . . by separating laminae between spaced secured areas [e.g., honeycomb expanding]
 156/1005 . . . by inward collapsing of portion of hollow body
 156/1007 . . . Running or continuous length work
 156/1008 Longitudinal bending
 156/101 Prior to or during assembly with additional lamina
 156/1011 Overedge bending or overedge folding
 156/1013 and edge-joining of one piece blank to form tube
 156/1015 Folding
 156/1016 Transverse corrugating
 156/1018 Subsequent to assembly of laminae
 156/102 with deformation or cutting of corrugated lamina
 156/1021 Treating material of corrugated lamina or dry adhesive thereon to render tacky
 156/1023 Surface deformation only [e.g., embossing]
 156/1025 . . . to form undulated to corrugated sheet and securing to base with parts of shaped areas out of contact
 156/1026 . . . with slitting or removal of material at reshaping area prior to reshaping
 156/1028 . . . by bending, drawing or stretch forming sheet to assume shape of configured lamina while in contact therewith
 156/103 Encasing or enveloping the configured lamina
 156/1031 with preshaping of lamina
 156/1033 Flexible sheet to cylinder lamina
 156/1034 . . . Overedge bending of lamina about edges of sheetlike base
 156/1036 . . . Bending of one piece blank and joining edges to form article
 156/1038 Hollow cylinder article
 156/1039 . . . Surface deformation only of sandwich or lamina [e.g., embossed panels]
 156/1041 Subsequent to lamination
 156/1043 . . . Subsequent to assembly
 156/1044 of parallel stacked sheets only
 156/1046 Bending of one lamina only

- 156/1048 to form dished or receptacle-like product
- 156/1049 Folding only
- 156/1051 by folding
- 156/1052 with cutting, punching, tearing or severing
- 156/1054 and simultaneously bonding [e.g., cut-seaming]
- 156/1056 Perforating lamina
- 156/1057 Subsequent to assembly of laminae
- 156/1059 Splitting sheet lamina in plane intermediate of faces
- 156/1061 Spiral peeling
- 156/1062 Prior to assembly
- 156/1064 Partial cutting [e.g., grooving or incising]
- 156/1066 Cutting to shape joining edge surfaces only
- 156/1067 Continuous longitudinal slitting
- 156/1069 Bonding face to face of laminae cut from single sheet
- 156/107 Punching and bonding pressure application by punch
- 156/1072 Closure cap liner applying type
- 156/1074 Separate cutting of separate sheets or webs
- 156/1075 of plural laminae from single stock and assembling to each other or to additional lamina
- 156/1077 Applying plural cut laminae to single face of additional lamina
- 156/1079 Joining of cut laminae end-to-end
- 156/108 Flash, trim or excess removal
- 156/1082 Partial cutting bonded sandwich [e.g., grooving or incising]
- 156/1084 of continuous or running length bonded web
- 156/1085 One web only
- 156/1087 Continuous longitudinal slitting
- 156/1089 of discrete laminae to single face of additional lamina
- 156/109 Embedding of laminae within face of additional laminae
- 156/1092 All laminae planar and face to face
- 156/1093 with covering of discrete laminae with additional lamina
- 156/1095 Opposed laminae are running length webs
- 156/1097 Lamina is running length web
- 156/1098 Feeding of discrete laminae from separate sources
- 156/11 Methods of delaminating, per se; i.e. , separating at bonding face
- 156/1105 Delaminating process responsive to feed or shape at delamination
- 156/1111 Using solvent during delaminating [e.g., water dissolving adhesive at bonding face during delamination, etc.]
- 156/1116 Using specified organic delamination solvent
- 156/1121 Using vibration during delaminating
- 156/1126 Using direct fluid current against work during delaminating
- 156/1132 Using vacuum directly against work during delaminating
- 156/1137 Using air blast directly against work during delaminating
- 156/1142 Changing dimension during delaminating [e.g., crushing, expanding, warping, etc.]
- 156/1147 Using shrinking or swelling agent during delaminating
- 156/1153 Temperature change for delamination [e.g., heating during delaminating, etc.]
- 156/1158 Electromagnetic radiation applied to work for delamination [e.g., microwave, uv, ir, etc.]
- 156/1163 Sintering for delamination
- 156/1168 Gripping and pulling work apart during delaminating
- 156/1174 Using roller for delamination [e.g., roller pairs operating at differing speeds or directions, etc.]
- 156/1179 with poking during delaminating [e.g., jabbing, etc.]
- 156/1184 Piercing layer during delaminating [e.g., cutting, etc.]
- 156/1189 with shearing during delaminating
- 156/1195 Delaminating from release surface
- 156/12 Surface bonding means and/or assembly means with cutting, punching, piercing, severing or tearing
- 156/125 Plural severing means each acting on a different work piece
- 156/13 Severing followed by associating with part from same source
- 156/1304 Means making hole or aperture in part to be laminated
- 156/1309 and securing separate part over hole or aperture
- 156/1313 Cutting element simultaneously bonds [e.g., cut seaming]
- 156/1317 Means feeding plural workpieces to be joined
- 156/1322 Severing before bonding or assembling of parts
- 156/1326 Severing means or member secured thereto also bonds
- 156/133 Delivering cut part to indefinite or running length web
- 156/1335 Cutter also delivers cut piece
- 156/1339 Delivering cut part in sequence to serially conveyed articles
- 156/1343 Cutting indefinite length web after assembly with discrete article
- 156/1348 Work traversing type
- 156/1352 with liquid applying means
- 156/1357 Slitting and severing
- 156/1361 Cutting after bonding
- 156/1365 Fixed cutter
- 156/137 Stamp from multiple row sheet type
- 156/1374 with means projecting fluid against work
- 156/1378 Cutter actuated by or secured to bonding element
- 156/1383 with liquid applicator
- 156/1387 Common actuator for bonding and liquid applying means
- 156/1391 Liquid applied to web before cutting
- 156/1396 Roller applicator
- 156/14 Surface bonding means and/or assembly means with shaping, scarifying, or cleaning joining surface only
- 156/15 Combined or convertible surface bonding means and/or assembly means
- 156/16 Surface bonding means and/or assembly means with bond interfering means [slip sheet, etc.]
- 156/17 Surface bonding means and/or assembly means with work feeding or handling means
- 156/1702 For plural parts or plural areas of single part
- 156/1705 Lamina transferred to base from adhered flexible web or sheet type carrier
- 156/1707 Discrete spaced laminae on adhered carrier

156/171	. . . . Means serially presenting discrete base articles or separate portions of a single article	156/1911	. . Heating or cooling delaminating means [e.g., melting means, freezing means, etc.]
156/1712	. . . Indefinite or running length work	156/1917	. . . Electromagnetic radiation delaminating means [e.g., microwave, uv, ir, etc.]
156/1715	. . . . Means joining indefinite length work edge to edge	156/1922	. . Vibrating delaminating means
156/1717	. . . . . Means applying adhesively secured tape to seam	156/1928	. . Differential fluid pressure delaminating means
156/172	. . . . . Means applying fluid adhesive to work edge	156/1933	. . . Spraying delaminating means [e.g., atomizer, etc.]
156/1722	. . . . . Means applying fluent adhesive or adhesive activator material between layers	156/1939	. . . . Air blasting delaminating means]
156/1724	. . . . . At spaced areas	156/1944	. . . Vacuum delaminating means [e.g., vacuum chamber, etc.]
156/1727	. . . . . Plural indefinite length or running length workpieces	156/195	. . Delaminating roller means
156/1729	. . . . . Fluid applied to nip between indefinite length webs	156/1956	. . . Roller pair delaminating means
156/1732	. . . . . Fluid applied to plural workpieces	156/1961	. . Severing delaminating means [e.g., chisel, etc.]
156/1734	. . . . Means bringing articles into association with web	156/1967	. . . Cutting delaminating means
156/1737	. . . . Discontinuous, spaced area, and/or patterned pressing	156/1972	. . . . Shearing delaminating means
156/1739	. . . . Webs of different width, longitudinally aligned	156/1978	. . Delaminating bending means
156/1741	. . . . Progressive continuous bonding press [e.g., roll couples]	156/1983	. . . Poking delaminating means
156/1744	. . . Means bringing discrete articles into assembled relationship	156/1989	. . . Corner edge bending delaminating means
156/1746	. . . . Plural lines and/or separate means assembling separate sandwiches	156/1994	. . Means for delaminating from release surface
156/1749	. . . . All articles from single source only		
156/1751	. . . . At least three articles		
156/1754	. . . . . At least two applied side by side to common base		
156/1756	. . . . . Plural ranks		
156/1759	. . . . . Sheet form common base		
156/1761	. . . . . Stacked serially		
156/1763	. . . . Magazine stack directly contacting separate work		
156/1766	. . . . . Magazine movable to work		
156/1768	. . . . Means simultaneously conveying plural articles from a single source and serially presenting them to an assembly station		
156/1771	. . . . . Turret or rotary drum-type conveyor		
156/1773	. . . . . For flexible sheets		
156/1776	. . . . Means separating articles from bulk source		
156/1778	. . . . . Stacked sheet source		
156/178	. . . . . Rotary or pivoted picker		
156/1783	. . . . . Translating picker		
156/1785	. . Magazine stack directly contacting work		
156/1788	. . Work traversing type and/or means applying work to wall or static structure		
156/179	. . . with liquid applying means		
156/1793	. . . Grip or clamp for web end		
156/1795	. . . Implement carried web supply		
156/1798	. . with liquid adhesive or adhesive activator applying means		
156/18	. Surface bonding means and/or assembly means with handle or handgrip		
156/19	. Delaminating means		
156/1906	. . Delaminating means responsive to feed or shape at delamination		
		Former US Class 225 series	
		225/00	Severing by tearing or breaking
		225/10	. Methods
		225/12	. . With preliminary weakening
		225/14	. . Longitudinally of direction of feed
		225/16	. . Transversely of continuously fed work
		225/18	. . . Progressively to or from one side edge
		225/20	. Severing by manually forcing against fixed edge
		225/201	. . With other type severing means
		225/202	. . With timer-released means for preventing work feed-out
		225/203	. . Including means to effect bias cut
		225/205	. . With feed-out of predetermined length from work supply
		225/206	. . . Including means to select or adjust feed-out length
		225/207	. . . Including feed-out stop for manually pulled work
		225/208	. . . . Stop abuts work edge or work-mounted article
		225/209	. . . . With feed-out of lead-end to aid initial grasping
		225/21	. . . Merely to provide lead-end for manual grasping
		225/211	. . . Manually operated feed-out mechanism
		225/213	. . With indicator
		225/214	. . . Indicates length to be severed from supply
		225/215	. . With blade-edge guard
		225/216	. . . Movable
		225/217	. . Work stripped from blade by relatively movable means
		225/218	. . . Including movable blade
		225/22	. . With means to move work toward or into severing position
		225/221	. . . With means to strip adhering work therefrom
		225/222	. . With work-immobilizing paster surface
		225/223	. . . With finger-access opening
		225/224	. . With means to hold pad or stack of individual sheets
		225/225	. . . With means to separate severed end of stub from supply package

225/226	. . . With changeable blade-edge contour	225/279	. . . . . Opposed movable jaws
225/228	. . . . Slidable notcher	225/28	. . Wound package bodily biased toward fixed blade
225/229	. . . Blade slidable along plane of work surface	225/282	. . With fixed blade and support for wound package
225/23	. . Zigzag-folded supply package	225/283	. . . Body- or belt-attached
225/231	. . Separate blades usable alternatively or sequentially on same work supply	225/284	. . . With brake applied to supply package
225/232	. . Plural supply sources	225/285	. . . With guide spaced from blade edge to provide lead-end therebetween
225/233	. . . On turret-type support with single blade	225/286	. . With work-abutment stop
225/234	. . . With movable blade registrable selectively with each source	225/287	. . With brake or clamp
225/236	. . . With plural blades	225/289	. . . Thread cutter and clamp attachment for sewing machine presser foot
225/237	. . . . With individual blade for each source	225/29	. . . Applied to running length work
225/238	. . With housing for work supply	225/291	. . . . Spaced from blade edge to provide lead-end therebetween
225/239	. . . Liquid-, gas-, or light-tight work passage	225/292	. . . . . Blade manually movable to expose lead-end
225/24	. . . With inspection window or transparent panel	225/293	. . . . . Manually applied, spring returned
225/241	. . . With mounting means for housing	225/294	. . With guide for running length work
225/243	. . . Blade on pivoted closure for housing	225/295	. . Blade manually movable to or from severing position
225/244	. . . Sectional telescoping housing	225/297	. . With means to facilitate lead-end grasping
225/245	. . . . Including removable cap or sleeve enclosure for spooled work supply	225/298	. . Blades or severing devices
225/246	. . . Including special support for wound supply package	225/299	. . . Adjustable blade-edge contour
225/247	. . . . Bearing or trunnions to engage package core	225/30	. Breaking or tearing apparatus
225/248	. . . Single blank container	225/304	. . Including means to apply thermal shock to work
225/249	. . . . Blade unitary with container	225/307	. . Combined with preliminary weakener or with nonbreaking cutter
225/251	. . . . With closure fastener	225/314	. . . Successively actuated sharp and dull tools
225/252	. . . . With brake or tensioner	225/321	. . . Preliminary weakener
225/253	. . . . Restricted or restrictable work outlet	225/325	. . . . With means to apply moment of force to weakened work
225/254	. . . With finger-access opening to facilitate work feed-out	225/329	. . Plural breakers
225/255	. . . With internal guide	225/336	. . Conveyor diverter for moving work
225/256	. . Blade carrier bodily and slidably supported on running length work	225/343	. . . Plural divergent work paths
225/257	. . Blade mounted on hand-held wound package	225/35	. . Work-parting pullers [burstors]
225/259	. . . With lead-end stripper for tacky adhesive work	225/357	. . . Relatively movable clamps
225/26	. . . By resiliently embracing outer circumference of package	225/364	. . Axial twisters
225/261	. . . Work supply nonrotatably wound on flanged spool	225/371	. . Movable breaking tool
225/262	. . . . Circumferentially movable blade radially retained by beaded or grooved flanges	225/379	. . . Breaking tool intermediate spaced work supports
225/263	. . . . Blade carrier supports hollow spool for rotation	225/386	. . . . Clamping supports
225/264	. . . . Flange edge notched to provide or coact with cutter	225/393	. . Web restrainer
225/266	. . . . . With clamp for lead-end of strand-type work	Former US Class 279 Series	
225/267	. . . . . Strand clamped against flange	279/00	Chucks or sockets
225/268	. . . . By resiliently engaging package ends or interior of core	279/10	. Expanding
225/269	. . . Blade carrier supports package for rotation	279/1004	. . Collet type
225/27	. . Movable blade continually biased toward wound web supply package	279/1008	. . . Fixed jaws and moving cam
225/271	. . . Including temporary bias-disabling means	279/1012	. . . Fixed cam and moving jaws
225/272	. . . Including stripper to separate lead-end from package	279/1016	. . Jaws mounted on flexible member; i.e., diaphragm
225/274	. . . Weight of bodily movable package contributes to blade-biasing force	279/1021	. . Fluid-pressure actuator
225/275	. . . Blade slidably guided	279/1024	. . . Directly expanding jaws
225/276	. . Blade movable to severing position by moving work	279/1029	. . . . Jaw is expansible chamber; i.e., bladder type
225/277	. . . With simultaneous application of brake or clamp	279/1033	. . . Expanding jaws via mechanical connection
225/278	. . . . Applied to running length work	279/1037	. . Axially moving actuator
		279/1041	. . . Wedge
		279/1045	. . . . Internal cone
		279/1049	. . . . with jaw positively interlocked with wedge; e.g., dovetail or T-slot
		279/1054	. . . . with resilient means contacting nonresilient jaw

279/1058	. . . . .	Constricting band, annulus, or clip	279/17273	. . . . .	Axial screw actuator
279/1062	. . .	Toggle	279/17282	. . . . .	Threaded-sleeve actuator
279/1066	. . .	Axially compressible element expands radially	279/17291	. . .	Resilient split socket
279/1071	. . .	Lever	279/17299	. . .	Threaded cam sleeve
279/1074	. . .	Rotary actuator	279/17307	. . .	Reciprocating cam sleeve
279/1079	. . .	Clutch or self-actuating type	279/17316	. . .	Unitary
279/1083	. . .	Jaw structure	279/17324	. . . . .	Split at one end only
279/1087	. . .	Resilient	279/17333	. . . . .	Transverse screw actuator
279/1091	. . .	Ball or roller	279/17341	. . . . .	Cam actuator
279/1095	. . .	Pivoted	279/17351	. . . . .	Split end to end
279/11	. . .	Vacuum	279/17358	. . . . .	with jaw pads or insert
279/12	. . .	with fluid-pressure actuator	279/17367	. . .	Nonresilient member biased by a resilient member
279/1208	. . .	with measuring, indicating or control means	279/17376	. . .	Resilient member reinforced by another resilient member
279/1216	. . .	Jaw is expansible chamber; i.e., bladder type	279/17384	. . .	with means to exclude contaminants; e.g., seal, shield
279/1224	. . .	Pneumatic type	279/17393	. . .	One movable side
279/1233	. . .	Jaws mounted on flexible member; i.e., diaphragm	279/17401	. . .	Sleeved
279/1241	. . .	Socket type	279/17411	. . .	Spring biased jaws
279/1249	. . .	Collet	279/17418	. . .	Unitary
279/1258	. . . . .	Fixed cam and moving jaws	279/17427	. . . . .	Split at one end only
279/1266	. . . . .	Moving cam and fixed jaws	279/17435	. . . . .	Split at both ends
279/1274	. . .	Radially reciprocating jaws	279/17444	. . . . .	Split end to end
279/1283	. . .	Fluid pressure directly moves jaws	279/17452	. . . . .	with jaw pads or insert
279/1291	. . .	Fluid pressure moves jaws via mechanical connection	279/17461	. . .	Nonresilient member biased by a resilient member
279/13	. . .	Angularly adjustable or indexing	279/17471	. . .	Resilient member reinforced by another resilient member
279/14	. . .	Eccentric	279/17478	. . .	with means to exclude contaminants; e.g., seal, shield
279/15	. . .	Threaded grip	279/17487	. . .	Moving-cam actuator
279/16	. . .	Longitudinal screw clamp	279/17495	. . . . .	Threaded sleeve and wedge
279/17	. . .	Socket type	279/17504	. . . . .	Threaded cam sleeve
279/17008	. . .	Multiple alternative	279/17512	. . . . .	Loose jaws
279/17017	. . .	Self-centering of floating	279/17521	. . . . .	Reciprocating cam sleeve
279/17025	. . .	Radially reciprocating jaws	279/17529	. . .	Fixed cam and moving jaws
279/17034	. . .	Transverse holder and setscrew	279/17538	. . . . .	Threaded-sleeve actuator
279/17042	. . .	Lost motion	279/17547	. . . . .	Axial screw actuator
279/17051	. . .	Swinging external yoke or detent	279/17555	. . .	Loose jaws
279/17059	. . . . .	Rotary socket	279/17564	. . .	Loose jaws
279/17068	. . .	Rotary socket	279/17572	. . .	Moving-cam actuator
279/17076	. . .	Spreading elements	279/17581	. . . . .	Threaded cam sleeve
279/17085	. . .	Key retainer	279/17589	. . . . .	Reciprocating cam sleeve
279/17094	. . .	Sleeve type retainer	279/17598	. . .	Fixed cam and moving jaws
279/17102	. . . . .	Sleeve in socket	279/17606	. . . . .	Threaded sleeve and body
279/17111	. . .	Fluid-conduit drill holding	279/17615	. . .	Obliquely guided reciprocating jaws
279/17119	. . .	Feed type	279/17623	. . .	Threaded sleeve and jaw
279/17128	. . .	Self-grasping	279/17632	. . . . .	Conical sleeve
279/17136	. . .	Yielding grasping jaws	279/17641	. . .	Threaded central cone and jaw
279/17145	. . . . .	Ball or roller	279/17649	. . .	Threaded sleeve and body
279/17153	. . . . .	Spring jaws	279/17658	. . .	Reciprocating jaw advancing sleeve
279/17162	. . .	Yielding detent	279/17666	. . .	Radially reciprocating jaws
279/17171	. . .	One-way-clutch type	279/17675	. . .	Transverse-screw actuated
279/17179	. . . . .	Wedge	279/17683	. . . . .	Interlaced jaws
279/17188	. . . . .	Side detent	279/17692	. . .	Moving-cam actuator
279/17196	. . . . .	Ball or roller	279/17701	. . . . .	Threaded cam sleeve
279/17205	. . .	Conical clamp threaded in socket	279/17709	. . . . .	Threaded sleeve and wedge
279/17213	. . .	Transversely oscillating jaws	279/17717	. . . . .	Rotary eccentric-cam sleeve
279/17222	. . .	Screw actuated	279/17726	. . . . .	Roller and rocking jaw
279/17231	. . .	Pivoted jaws	279/17735	. . . . .	Worm actuated
279/17239	. . .	Moving-cam actuator	279/17743	. . . . .	Reciprocating cam sleeve
279/17247	. . . . .	Threaded cam sleeve			
279/17256	. . . . .	Reciprocating cam sleeve			
279/17264	. . .	Fixed cam and moving jaws			

292/0839	. . . . . Link and lever	292/0909	. . . . . Panel
292/084	. . . . . Cam	292/091	. . . . . Platform
292/0841	. . . . . Flexible	292/0911	. . . . . Hooked end
292/0843	. . . . . Gear	292/0913	. . . . . Sliding and swinging
292/0844	. . . . . Lever	292/0914	. . . . . Operating means
292/0845	. . . . . Push or pull rod	292/0915	. . . . . Cam
292/0846	. . . . . Rigid	292/0916	. . . . . Gear
292/0847	. . . . . Screw	292/0917	. . . . . Lever
292/0848	. . . . . Swinging	292/0918	. . . . . Rigid
292/0849	. . . . . Operating means	292/092	. . . . . Screw
292/0851	. . . . . Cam and lever	292/0921	. . . . . Multiple head
292/0852	. . . . . Link and cam	292/0922	. . . . . Operating means
292/0853	. . . . . Link and lever	292/0923	. . . . . Lever
292/0854	. . . . . Cam	292/0924	. . . . . Push or pull rod
292/0855	. . . . . Flexible	292/0925	. . . . . Rigid
292/0856	. . . . . Gear	292/0926	. . . . . Spring projected
292/0857	. . . . . Lever	292/0928	. . . . . Operating means
292/0859	. . . . . Push or pull rod	292/0929	. . . . . Link and lever
292/086	. . . . . Rigid	292/093	. . . . . Cam
292/0861	. . . . . Screw	292/0931	. . . . . Flexible
292/0862	. . . . . Swinging and hooked end, multiple head	292/0932	. . . . . Lever
292/0863	. . . . . Sliding and rotary	292/0933	. . . . . Push or pull rod
292/0864	. . . . . Combined motion	292/0934	. . . . . Rigid
292/0866	. . . . . Multiple head	292/0936	. . . . . Spring retracted
292/0867	. . . . . Spring projected	292/0937	. . . . . Gravity actuated
292/0868	. . . . . Combined motion	292/0938	. . . . . Operating means
292/0869	. . . . . Spring retracted	292/0939	. . . . . Cam
292/087	. . . . . Loops	292/094	. . . . . Flexible
292/0871	. . . . . Sliding and swinging, lever-operating means	292/0941	. . . . . Lever
292/0872	. . . . . Sliding catch	292/0943	. . . . . Push or pull rod
292/0874	. . . . . Spring-arm catch	292/0944	. . . . . Rigid
292/0875	. . . . . Swinging catch	292/0945	. . . . . Operating means
292/0876	. . . . . Double acting	292/0946	. . . . . Link and lever
292/0877	. . . . . Sliding and swinging	292/0947	. . . . . Cam
292/0878	. . . . . Sliding	292/0948	. . . . . Closure
292/0879	. . . . . Roller	292/0949	. . . . . Lever
292/088	. . . . . Spring arm	292/0951	. . . . . Rigid
292/0882	. . . . . Roller	292/0952	. . . . . Closure catch
292/0883	. . . . . Swinging	292/0953	. . . . . Friction catch
292/0884	. . . . . Roller	292/0954	. . . . . Padlock or seal catch
292/0885	. . . . . Roller	292/0955	. . . . . Screw catch
292/0886	. . . . . Sliding and swinging	292/0956	. . . . . Sliding catch
292/0887	. . . . . Operating means	292/0957	. . . . . Spring-arm catch
292/0889	. . . . . Cam	292/0959	. . . . . Swinging catch
292/089	. . . . . Lever	292/096	. . . . . Sliding
292/0891	. . . . . Rigid	292/0961	. . . . . Multiple head
292/0892	. . . . . Multiple head	292/0962	. . . . . Operating means
292/0893	. . . . . Spring retracted	292/0963	. . . . . Link and lever
292/0894	. . . . . Spring arm	292/0964	. . . . . Cam
292/0895	. . . . . Operating means	292/0966	. . . . . Gear
292/0897	. . . . . Link and lever	292/0967	. . . . . Lever
292/0898	. . . . . Cam	292/0968	. . . . . Rigid
292/0899	. . . . . Flexible	292/0969	. . . . . Spring projected
292/09	. . . . . Lever	292/097	. . . . . Operating means
292/0901	. . . . . Push or pull rod	292/0971	. . . . . Cam and lever
292/0902	. . . . . Rigid	292/0972	. . . . . Lever and push or pull rod
292/0903	. . . . . Seal catch	292/0974	. . . . . Link and lever
292/0905	. . . . . Swinging catch	292/0975	. . . . . Link and push or pull rod
292/0906	. . . . . Screw	292/0976	. . . . . Sliding cam
292/0907	. . . . . Multiple head	292/0977	. . . . . Cam
292/0908	. . . . . Emergency operating means	292/0978	. . . . . Specifically related to vehicle closure

292/0979	. . . . . Bolt disabled by contraretractive movement of inside handle	292/1045	. . . . . Operating means
292/098	. . . . . Auxiliary bolt	292/1046	. . . . . Cam
292/0982	. . . . . Bolt blocking or disabling means	292/1047	. . . . . Closure
292/0983	. . . . . Involves rollback	292/1048	. . . . . Lever
292/0984	. . . . . Rollback members located on separate spindles	292/1049	. . . . . Rigid
292/0985	. . . . . Discrete pivotable or rotatable actuator	292/1051	. . . . . Spring projected
292/0986	. . . . . Discrete push or pull actuator	292/1052	. . . . . Operating means
292/0987	. . . . . Bolt has ancillary projection spring	292/1053	. . . . . Lever and push or pull rod
292/0989	. . . . . Plural rollback elements directionally selectively effective	292/1054	. . . . . Link and cam
292/099	. . . . . On separate spindles	292/1055	. . . . . Link and lever
292/0991	. . . . . On a tubular member	292/1056	. . . . . Cam
292/0992	. . . . . Flexible	292/1057	. . . . . Flexible
292/0993	. . . . . Gear	292/1059	. . . . . Lever
292/0994	. . . . . Lever	292/106	. . . . . Push or pull rod
292/0995	. . . . . Push or pull rod	292/1061	. . . . . Rigid
292/0997	. . . . . Rigid	292/1062	. . . . . Spring retracted
292/0998	. . . . . Screw	292/1063	. . . . . Gravity actuated
292/0999	. . . . . Spring retracted	292/1064	. . . . . Operating means
292/10	. . . . . Friction catch	292/1066	. . . . . Cam and lever
292/1001	. . . . . Sliding catch	292/1067	. . . . . Link and lever
292/1002	. . . . . Spring-arm catch	292/1068	. . . . . Cam
292/1003	. . . . . Swinging catch	292/1069	. . . . . Flexible
292/1005	. . . . . Cam-operating means	292/107	. . . . . Lever
292/1006	. . . . . Gravity actuated	292/1071	. . . . . Push or pull rod
292/1007	. . . . . Operating means	292/1072	. . . . . Rigid
292/1008	. . . . . Cam and lever	292/1074	. . . . . Roller
292/1009	. . . . . Link and lever	292/1075	. . . . . Operating means
292/101	. . . . . Cam	292/1076	. . . . . Link and lever
292/1011	. . . . . Lever	292/1077	. . . . . Cam
292/1013	. . . . . Rigid	292/1078	. . . . . Closure
292/1014	. . . . . Operating means	292/1079	. . . . . Gear
292/1015	. . . . . Link and lever	292/108	. . . . . Lever
292/1016	. . . . . Cam	292/1082	. . . . . Motor
292/1017	. . . . . Flexible	292/1083	. . . . . Rigid
292/1018	. . . . . Gear	292/1084	. . . . . Closure catch
292/102	. . . . . Lever	292/1085	. . . . . Friction catch
292/1021	. . . . . Motor	292/1086	. . . . . Padlock or seal catch
292/1022	. . . . . Rigid	292/1087	. . . . . Screw catch
292/1023	. . . . . Closure catch	292/1089	. . . . . Sliding catch
292/1024	. . . . . Friction catch	292/109	. . . . . Seal
292/1025	. . . . . Padlock or seal catch	292/1091	. . . . . Spring-arm catch
292/1026	. . . . . Screw catch	292/1092	. . . . . Swinging catch
292/1028	. . . . . Sliding catch	292/1093	. . . . . Seal
292/1029	. . . . . Seal	292/1094	. . . . . Screw
292/103	. . . . . Spring-arm catch	292/1095	. . . . . Seal-rupturing devices
292/1031	. . . . . Swinging catch	292/1097	. . . . . Reversible
292/1032	. . . . . Seal	292/1098	. . . . . Cam and lever operating means
292/1033	. . . . . Screw	292/1099	. . . . . Screw
292/1034	. . . . . Curved	292/11	. . . . . Magnetic
292/1036	. . . . . End lever	292/14	. . . . . Ball
292/1037	. . . . . Pivoted end	292/17	. . . . . Bendable securers
292/1038	. . . . . Roller	292/175	. . . . . Bolt releasers
292/1039	. . . . . Swinging and camming	292/18	. . . . . Free-end-engaging means
292/10395	. . . . . Spring projected	292/19	. . . . . Foot operated
292/104	. . . . . Rigid operating means	292/20	. . . . . Clamps
292/1041	. . . . . Rigid operating means	292/202	. . . . . Hatch fastener
292/1043	. . . . . Swinging	292/205	. . . . . Ring
292/1044	. . . . . Multiple head	292/207	. . . . . Permanently deformed
		292/209	. . . . . Resilient wedge
		292/212	. . . . . With expanding or contracting means
		292/214	. . . . . Screw

292/216	. . . . Toggle lever	292/485	. . . . Sheet metal
292/218	. . Screw against closure	292/487	. . . . Hard and soft metal
292/221	. . Screw and nut	292/488	. . . Sheet metal
292/223	. . . Swingable	292/49	. . Compressible rivets and eyelets
292/225	. . Cam-operating means	292/491	. . Distorted shackle
292/228	. . Portable	292/492	. . Driving
292/23	. Cross bars	292/494	. . Interengaging shackle ends, inclosing housing
292/237	. . Screw-operating means	292/4945	. . Rigid shackle ends
292/243	. . Vehicle door latches	292/495	. . . Resilient and rigid engaging means
292/25	. Cylinder	292/496	. . . Resilient engaging means
292/28	. Extension link	292/497	. . Resilient shackle ends
292/282	. . Multiple	292/498	. . . Rigid engaging means
292/283	. . Chain	292/499	. . . Resilient engaging means
292/285	. . Notched bar	292/50	. . Single piece, spring catch
292/286	. . . Sliding catch	292/502	. . Shiftable catch shackle operated
292/288	. . . Swinging catch	292/503	. . Split-ring catch, shackle operated
292/289	. . Slotted bar	292/505	. . Strap-end fasteners
292/291	. . . Sliding catch	292/506	. . Rigid disk, distorted shackle
292/293	. . . Swinging catch	292/507	. . Tag type
292/2935	. . Slotted or notched keeper	292/509	. . Encasing
292/294	. . . Sliding catch	292/51	. Seal bolts
292/296	. . . Swinging catch	292/513	. Shackles
292/297	. . Notched keeper	292/516	. . Sliding catch, seal
292/299	. . Slotted keeper	292/522	. . Swinging catch, seal
292/301	. . Friction catch	292/528	. . Seal catch
292/302	. . Screw catch	292/534	. . Seal-rupturing devices
292/304	. . Sliding catch	292/54	. Trippers
292/305	. . Swinging catch	292/546	. . Sliding detent
292/306	. Gear	292/552	. . Spring-arm detent
292/307	. . Sliding catch	292/558	. . Sliding bolt, swinging detent
292/308	. . Swinging catch	292/564	. . Swinging bolt, swinging detent
292/31	. Hasps	292/57	. Operators with knobs or handles
292/314	. . Sliding catch	292/59	. Rollback and spindle connection
292/319	. . . Seal	292/62	. Bolt casings
292/323	. . Swinging catch	292/65	. Braces
292/327	. . . Seal	292/67	. . Portable
292/331	. . Seal catch	292/68	. Keepers
292/336	. . Seal-rupturing devices	292/683	. . Segment
292/34	. Portable	292/685	. . With anti-friction means
292/37	. Portable securer plate or bar	292/688	. . With silencing or anti-rattle means
292/373	. . Sliding and swinging holding member	292/691	. . . Take-up
292/376	. . Screw-holding member	292/694	. . Covers
292/379	. . Sliding holding member	292/696	. . With movable dog, catch or striker
292/382	. . . Screw-operating means	292/699	. . . Motor controlled
292/385	. . . Screw catch	292/702	. . . Pivoted or swinging
292/388	. . . Sliding catch	292/705	. . Adjustable
292/391	. . . Swinging catch	292/707	. . . Vertically
292/394	. . Swinging holding member	292/71	. Wedges
292/397	. . . Catch devices	292/73	. . Portable
292/40	. Rings	292/74	. Weights
292/42	. Rigid engaging means	292/76	. Blind-slat holders
292/426	. . Screw catch	292/79	. Bolt guards
292/432	. . Sliding catch	292/82	. Knobs
292/438	. . Spring-arm catch	292/85	. Knob-attaching devices
292/444	. . Swinging catch	292/854	. . Friction
292/45	. Rod clamps	292/858	. . Screw
292/47	. . Friction-plate catch	292/861	. . . Guards
292/48	. Seals	292/865	. . Sliding
292/481	. . Compressible disk	292/869	. . Spring arm
292/483	. . . Reinforced	292/873	. . Swinging
292/484	. . . Multiple	292/876	. . Wedge

292/88	. Knob bearings	403/32262	. . . . At selected angle
292/91	. Knob rose plates	403/32271	. . . . Movable brace between members
292/93	. Latch spindles	403/32278	. . . . Members rotatable about oblique axes
292/96	. Latch-spindle catches	403/32286	. . . . Clamping screw traverses sliding complementary arcuate bearing surfaces
Former US Class 403 Series		403/32295	. . . . Securing yoke or ring spaced radially from locking means
403/00	Joints and connections	403/32303	. . . . . Eyebolt
403/10	. Selectively engageable hub to shaft connection	403/32311	. . . . . Ball and socket
403/16	. with adjunctive protector, broken parts retainer, repair, assembly or disassembly feature	403/32319	. . . . . including pivot stud
403/1608	. . Holding means or protector functioning only during transportation, assembly or disassembly	403/32327	. . . . . including radially spaced detent or latch component
403/1616	. . Position or guide means	403/32336	. . . . . Engaging notch or recess in outer periphery of component
403/1624	. . . Related to joint component	403/32344	. . . . . Side of rod engages recess in radial face
403/1633	. . Utilizing fluid pressure	403/32352	. . . . . Pivoted detent
403/20	. with indicator or inspection means	403/32361	. . . . . Engaging recess in radial face
403/21	. Utilizing thermal characteristic, e.g. , expansion or contraction, etc.	403/32368	. . . . . including radial interengaging tongue and slot or serrations
403/213	. . Interposed material of intermediate coefficient of expansion	403/32377	. . . . . Radially spaced arcuate slot engages fastener
403/217	. . Members having different coefficients of expansion	403/32385	. . . . . Locked by plural motions of one member
403/22	. with fluid pressure responsive component	403/32393	. . . . . including bridging keeper
403/29	. Rotarily connected, differentially translatable members, e.g. , turn-buckle, etc.	403/32401	. . . . . Locked by nesting parts
403/291	. . having tool-engaging means or operating handle	403/32409	. . . . . Members locked in axial alignment
403/293	. . having operating mechanism	403/32418	. . . . . Plural distinct positions
403/295	. . having locking means	403/32426	. . . . . Plural distinct positions
403/297	. . Differential pitch, similar hand	403/32434	. . . . . Unidirectional movement, e.g., ratchet, etc.
403/299	. . Externally threaded actuator	403/32442	. . . . . At least one discrete position
403/30	. Laterally related members connected by latch means, e.g. , scaffold connectors	403/32451	. . . . . Step-by-step adjustment
403/32	. Articulated members	403/32459	. . . . . Retainer extends through aligned recesses
403/32008	. . Plural distinct articulation axes	403/32467	. . . . . Telescoping members
403/32016	. . . Three or more parallel axes	403/32475	. . . . . having detent
403/32024	. . . Single adjustment for plural axes	403/32483	. . . . . Spring biased
403/32032	. . . Plural ball and socket	403/32491	. . . . . Threaded
403/32041	. . . Universal	403/32501	. . . . . Cam or wedge
403/32049	. . . . Non-coplanar axes	403/32508	. . . . . having transverse pin
403/32057	. . . Angular and linear	403/32516	. . . . . Remotely actuated
403/32065	. . . . Screw and swivel	403/32524	. . . . . Self-locking
403/32073	. . . . Pivot stud slidable in elongated opening	403/32532	. . . . . Clamped members
403/32081	. . . . Parallel rotary	403/32541	. . . . . Rotatable members resiliently biased to one position
403/32091	. . . Plural translating connections	403/32549	. . . including limit means
403/32114	. . including static joint	403/32557	. . . for pivotal motion
403/32122	. . . Trunnion assembly to side of rod	403/32565	. . . . . Ball and socket with restricted movement about one axis
403/32131	. . . One member is plate or side	403/32573	. . . . . Ball stud passes through confining opening
403/32139	. . . . Secant, i.e., rod extending through plate	403/32581	. . . . . Pin and slot
403/32147	. . . . Plate or side forms bearing surface	403/32591	. . . . . Opposed stops on one member
403/32155	. . . . Bearing component clamped to plate or side, e.g., bolted, etc.	403/32606	. . . Pivoted
403/32163	. . . Articulate joint intermediate end joints	403/32614	. . . including circumferential biasing or damping means
403/32172	. . . . Variable angle	403/32622	. . . Rocking or rolling contact
403/32181	. . . . . Universal	403/32631	. . . Universal ball and socket
403/32188	. . . Angled or offset members	403/32639	. . . . . including internal tie means
403/32196	. . . Articulate joint is ball and socket	403/32647	. . . . . Plural concave surfaces with diverse curvature
403/32204	. . . . with threaded joint	403/32655	. . . . . Interposed concavo-convex component
403/32213	. . . Articulate joint is a swivel	403/32663	. . . . . Outer surfaces
403/32221	. . . Articulate joint comprises pivoted clevis or channel bar	403/32672	. . . . . Swiveled ball parts or seat
403/32229	. . . Articulate joint is a slide	403/32681	. . . . . Composite ball
403/32254	. . Lockable at fixed position		

- 403/32688 Spring biased segments
- 403/32696 Nonmetallic part
- 403/32704 Stud extends into ball
- 403/32713 Elastomerically biased or backed components
- 403/32721 Elastomeric seat
- 403/32729 Externally packed
- 403/32737 including liner, shim, or discrete seat
- 403/32745 Spring acts through wedging surfaces
- 403/32754 Variably preloaded
- 403/32762 Spring-biased seat opposite ball stud
- 403/32771 Porous
- 403/32778 Completely spacing the members
- 403/32786 Divided socket-type coupling
- 403/32795 Bifurcated socket
- 403/32803 Separable socket sections
- 403/32811 Spring-biased
- 403/32819 including tension or take-up means
- 403/32827 Interposed spring means coaxial with pivot
- 403/32836 Acting through tapered surface on bearing component
- 403/32844 Manually variable
- 403/32852 External of bearing assembly, e.g., antirattler, etc.
- 403/32861 T-pivot, e.g., wrist pin, etc.
- 403/32868 Floating pin
- 403/32877 Pin is integral with or secured to inner member
- 403/32885 Expanded pin or end
- 403/32893 including distinct pin retainer
- 403/32901 Unitary clip or plug
- 403/32909 Threaded pin end
- 403/32918 fork and tongue
- 403/32926 with interposed antifriction means
- 403/32934 Oppositely laterally movable tines
- 403/32942 On oblique interface
- 403/32951 Transverse pin or stud
- 403/32959 Traverses interposed facing component
- 403/32967 Attached to or integral with one member
- 403/32975 Rotatable
- 403/32983 Rod in socket
- 403/33 Transverse rod to spaced plate surfaces
- 403/335 Retainer utilizes or abuts plural plates
- 403/34 Branched
- 403/341 Three or more radiating members
- 403/342 Polyhedral
- 403/343 Unilateral of plane
- 403/344 Plural pairs of axially aligned members
- 403/345 Coplanar
- 403/346 Additional rod held by encompassing means
- 403/347 Polyhedral
- 403/348 Parallel rods
- 403/349 Coplanar
- 403/36 Three or more serial joints, at least one diverse
- 403/362 Nonaligned axes
- 403/364 Separable intermediate joint
- 403/366 Axially acting connector
- 403/368 Screw or cam
- 403/38 Laterally related rods independently joined to transverse surface
- 403/40 Radially spaced members joined by independent coupling
- 403/405 Flexible intermediate member
- 403/44 Three or more members connected at single locus
- 403/443 All encompassed
- 403/447 Mutually contacting
- 403/45 Flexibly connected rigid members
- 403/451 Rigid sleeve encompasses flexible bushing
- 403/452 Longitudinally divided sleeve
- 403/453 Flexible sleeve-type coupling
- 403/454 Connecting pin traverses radially interposed elastomer
- 403/455 Elastomer interposed between radially spaced members
- 403/456 Elastomer encompasses shoulder on inner member
- 403/457 including axially acting compressing means
- 403/458 Composite bushing with elastomeric component
- 403/459 Helical spring type coupling
- 403/46 Rod end to transverse side of member
- 403/4602 Corner joint
- 403/47 Molded joint
- 403/471 And independent connection
- 403/472 including mechanical interlock
- 403/473 Socket or open cup for bonding material
- 403/477 Fusion bond, e.g., weld, etc.
- 403/48 Shrunk fit
- 403/49 Member deformed in situ
- 403/4916 Interposed deforming element contacts socket bottom
- 403/4924 Inner member is expanded by longitudinally inserted element
- 403/4933 by separate, deformable element
- 403/4941 Deformation occurs simultaneously with action of separate, diverse function, joint component
- 403/4949 Deforming component is inserted section
- 403/4958 Separate deforming means remains with joint assembly
- 403/4966 Deformation occurs simultaneously with assembly
- 403/4974 by piercing
- 403/4983 Diverse resistance to lateral deforming force
- 403/4991 Both members deformed
- 403/50 Bridged by diverse connector
- 403/51 including spaced, diverse connections
- 403/53 Split end with laterally movable opposed portions
- 403/535 with separate force-applying means
- 403/54 Flexible member is joint component
- 403/55 Member ends joined by inserted section
- 403/551 Externally bridged
- 403/553 Laterally inserted section
- 403/555 Angle section
- 403/556 Section threaded to member
- 403/557 Expansive section
- 403/559 Fluted or splined section
- 403/57 Distinct end coupler
- 403/5706 Diverse serial connections
- 403/5713 Axially cleft coupler
- 403/5721 Single actuator for plural connections
- 403/5726 Axially biased end portions
- 403/5733 Plural opposed sockets
- 403/5741 Separate screw or pin-type connections
- 403/5746 Continuous thread

- 403/5753 having separable end caps or plugs
- 403/5761 Interrupted periphery, e.g., split or segmental, etc.
- 403/5766 Axially divided segments
- 403/5773 Interfitting
- 403/5781 Bolted
- 403/5786 Split
- 403/5793 including member wedging or camming means
- 403/59 Manually releaseable latch type
- 403/591 having operating mechanism
- 403/592 Ball detent
- 403/593 Remotely actuated
- 403/595 Lever
- 403/597 Swiveled bolt
- 403/598 Transversely sliding pin
- 403/599 Spring biased manipulator
- 403/60 Biased catch or latch
- 403/602 by separate spring
- 403/604 Radially sliding catch
- 403/606 Leaf spring
- 403/608 Pivoted
- 403/61 Side slide: elongated co-linear members
- 403/65 Scarf
- 403/655 Mirror images
- 403/66 Interfitted members with external bridging piece
- 403/67 Thimble: screw or cam
- 403/70 Interfitted members
- 403/7001 Crossed rods
- 403/7003 One rod is encompassed by the other
- 403/7005 Lugged member, rotary engagement
- 403/7007 Bayonet joint
- 403/7009 Rotary binding cam or wedge
- 403/7011 Radially interposed shim or bushing
- 403/7013 Arcuate slip
- 403/7016 Diametric end slot is joint component
- 403/7018 including separably interposed key
- 403/7021 Axially extending
- 403/7022 Resilient
- 403/7024 Longitudinally stepped or tapered
- 403/7026 Longitudinally splined or fluted rod
- 403/7028 Splayed or having a cam surface for anti-backlash
- 403/7031 Rod designed to be manipulable, e.g., twistable, within coupling for quick disconnect
- 403/7032 including a means, e.g., spring biased portion, for misalignment correction
- 403/7033 including a lock or retainer
- 403/7035 Specific angle or shape of rib, key, groove, or shoulder
- 403/7041 including set screw
- 403/7045 Interdigitated ends
- 403/7047 Radially interposed shim or bushing
- 403/7049 Biased by distinct radially acting means
- 403/7051 Wedging or camming
- 403/7052 Engaged by axial movement
- 403/7054 Plural, circumferentially related shims between members
- 403/7056 Threaded actuator
- 403/7058 Split or slotted bushing
- 403/7061 Resilient
- 403/7062 Clamped members
- 403/7064 by wedge or cam
- 403/7066 having actuator
- 403/7067 Threaded actuator
- 403/7069 Axially oriented
- 403/7071 Lever actuator
- 403/7075 including discrete retainer
- 403/7077 for telescoping members
- 403/7079 Transverse pin
- 403/7081 Multiple retainers
- 403/7083 having means to prevent removal of retainer
- 403/7084 Bolt, rivet, or screw
- 403/7086 Wedge pin
- 403/7088 Sliding pin
- 403/7091 Expansible retainer
- 403/7098 Non-circular rod section is joint component
- 403/71 Rod side to plate or side
- 403/7105 Connected by double clamp
- 403/7111 Shackle is integral with or independently attached to proximate side of plate or other side
- 403/7117 Flanged or grooved rod
- 403/7123 Traversed by connector
- 403/7129 Laterally spaced rods
- 403/7135 by separable shim or bushing in connector
- 403/7141 Plural channels in connector
- 403/7147 Connected by flexible tie
- 403/7152 Lapped rod ends
- 403/7158 Diagonal connector
- 403/7164 One rod held between bight and other rod extending through aperture in leg of connector
- 403/7171 Two rods encompassed by single connector
- 403/7176 Resilient clip
- 403/7182 Yoke or ring-type connector
- 403/7188 Rod received in open channel
- 403/7194 Crossed rods
- 403/75 having a joining piece extending through aligned openings in plural members
- 403/76 having a cam, wedge, or tapered portion

Former US Class 407 Series**407/00 Cutters, for shaping**

- 407/10 including noncutting work modifying means
- 407/11 including chip breaker, guide or deflector detachable from tool and tool holder
- 407/112 Adjustable relative to cutting edge
- 407/114 including adjusting means
- 407/116 Attached to or integral with tool clamping jaw
- 407/118 Chip breaker
- 407/12 Freely movable cutting edge
- 407/13 Yieldable tool
- 407/134 Resiliently mounted tool
- 407/137 including yield stress or flexure limit adjusting means
- 407/14 with means to apply fluid to cutting tool
- 407/15 Rotary broach
- 407/16 Rectilinear broach
- 407/1614 Hollow tool for surrounding workpiece
- 407/1628 including holder having seat for inserted tool
- 407/1642 Annular tool
- 407/1657 including single tooth
- 407/1671 Plural tooth groups
- 407/1685 including sequentially acting teeth of stepped cutting width
- 407/17 Gear cutting tool

- 407/1705 . . Face mill gear cutting tool
- 407/171 . . . Adjustable teeth
- 407/1715 . . Hob
- 407/172 . . . Thread cutting
- 407/1725 . . . including holder having seat for inserted tool
- 407/173 . . . for cutting involute gear tooth
- 407/1735 . . Rotary, gear shaving cutting tool
- 407/174 . . Gear generating, revolving shaper cutting tool
- 407/1745 . . Rotary, tooth form cutting tool
- 407/18 . . File or rasp
- 407/1805 . . Flexible blade or carrier therefor
- 407/181 . . Tire rasp
- 407/1815 . . Rotary file or round disc
- 407/182 . . Composite, diverse sector, or assembled
- 407/1825 . . Handle or holder, per se
- 407/19 . . Rotary cutting tool
- 407/1902 . . Gang
- 407/1904 . . Composite body of diverse material
- 407/1906 . . including holder [i.e., head] having seat for inserted tool
- 407/1908 . . . Face or end mill
- 407/191 Plural simultaneously usable separable tools in common seat or common clamp actuator for plural simultaneously usable tools
- 407/1912 Tool adjustable relative to holder
- 407/1914 Radially
- 407/1916 And axially
- 407/1918 Selectively
- 407/192 with separate means to fasten tool to holder
- 407/1922 Wedge clamp element
- 407/1924 Specified tool shape
- 407/1926 . . . Plural simultaneously usable separable tools in common seat or common clamp actuator for plural simultaneously usable tools
- 407/1928 . . . Tool adjustable relative to holder
- 407/193 Radially
- 407/1932 . . . with means to fasten tool seat to holder
- 407/1934 . . . with separate means to fasten tool to holder
- 407/1936 Apertured tool
- 407/1938 Wedge clamp element
- 407/194 Resilient clamp jaw
- 407/1942 . . . Peripherally spaced tools
- 407/1944 Sectional support
- 407/1946 . . Face or end mill
- 407/1948 . . . with cutting edge entirely across end of tool [e.g., router bit, end mill, etc.]
- 407/195 . . Compound tooth arrangement
- 407/1952 . . Having peripherally spaced teeth
- 407/1954 . . . Axially tapering tool
- 407/1956 . . . Circumferentially staggered
- 407/1958 Plural teeth spaced about a helix
- 407/196 . . . Varying in cutting edge profile
- 407/1962 . . . Specified tooth shape or spacing
- 407/1964 Arcuate cutting edge
- 407/1966 Helical tooth
- 407/20 . . Profiled circular tool
- 407/21 . . Arc segment tool
- 407/22 . . including holder having seat for inserted tool
- 407/2202 . . Plural spaced seats and common holder
- 407/2204 . . . Relatively adjustable seats
- 407/2206 . . . Simultaneously usable
- 407/2208 . . Plural simultaneously usable separable tools in common seat or common clamp actuator for plural simultaneously usable tools
- 407/221 Adjustable tool
- 407/2212 . . . with tool ejector
- 407/2214 . . . with separate means to adjust tool to and fro relative to holder
- 407/2216 with indicator
- 407/2218 Plural provisions for adjustment
- 407/222 by moving tool seat
- 407/2222 . . . Tool adjustable relative to holder
- 407/2224 with indicator
- 407/2226 Plural provisions for adjustment
- 407/2228 Plural interfering seats
- 407/223 including pivotable seat or tool
- 407/2232 with detent
- 407/2234 Pivoted seat
- 407/2236 And pivotable tool
- 407/2238 by adjustable or replaceable stop
- 407/224 Adjustable
- 407/2242 Screw
- 407/2244 by movement of seat relative to holder
- 407/2246 Pivoted seat
- 407/2248 Pivoted tool
- 407/225 Resiliently biased tool clamping jaw
- 407/2252 Rectilinearly
- 407/2254 including rotatable cam clamp element
- 407/2256 including wedge clamp element
- 407/2258 And guide or detent
- 407/226 including detent
- 407/2262 Tool gripped directly by set screw
- 407/2264 Slidable jaw
- 407/2266 . . . Holder adapted for tools of different shape
- 407/2268 . . . with chip breaker, guide or deflector
- 407/227 . . . with separate means to fasten tool seat to holder
- 407/2272 . . . with separate means to fasten tool to holder
- 407/2274 Apertured tool
- 407/2276 with means projecting through aperture to force tool laterally against reaction surface
- 407/2278 Tilting clamp element and separate means to tilt same
- 407/228 Rotatable cam clamp element
- 407/2282 including tool holding clamp and clamp actuator
- 407/2284 Wedge clamp element
- 407/2286 Resiliently biased clamp jaw
- 407/2288 Integral with holder
- 407/229 Pivoted jaw
- 407/2292 Slidable jaw
- 407/23 . . . including tool having plural alternatively usable cutting edges
- 407/235 . . . with integral chip breaker, guide or deflector
- 407/24 . . . with chip breaker, guide or deflector
- 407/245 . . . comprising concave surface in cutting face of tool
- 407/25 . . . including cut off tool
- 407/26 . . . comprising cutting edge bonded to tool shank
- 407/27 . . . comprising tool of specific chemical composition
- 407/28 . . . Miscellaneous

Former US Class 408 Series

- 408/00** . . . **Cutting by use of rotating axially moving tool**
- 408/03 . . . Processes

- 408/04 . . Bit detachable
- 408/05 . with means to weigh or test work or product
- 408/08 . with means to regulate operation by use of templet, tape, card, or other replaceable information supply
- 408/10 . with interlock between machine elements
- 408/13 . with randomly-actuated stopping means
- 408/14 . . Responsive to condition of Tool or tool-drive
- 408/15 . . Responsive to condition of work or product
- 408/16 . with control means energized in response to activator stimulated by condition sensor
- 408/165 . . to control Tool rotation
- 408/17 . . to control infeed
- 408/172 . . . Responsive to Tool
- 408/173 . . . Responsive to work
- 408/175 . . to control relative positioning of Tool and work
- 408/18 . with stopping upon completion of prescribed operation
- 408/20 . . Responsive to condition of work or product
- 408/21 . with signal, indicator, illuminator or optical means
- 408/23 . including means to cause Tool to progressively vibrate toward work
- 408/26 . with means to condition tool
- 408/29 . with means to deForm work temporarily
- 408/31 . Convertible cutting means
- 408/33 . . Utilizing common cutting Tool
- 408/34 . Combined cutting means
- 408/344 . . including Tool operating on rotating work
- 408/348 . . Plural other type cutting means
- 408/35 . . . including plural rotating tools
- 408/352 . . including rotating cutter other than rotating, axially moving Tool
- 408/353 . . . Crystalline cutter
- 408/355 . . . Utilized in cutting work or product to length
- 408/3555 Adapted to cut entire thickness of work at one pass
- 408/356 . . including plunging [single stroke] cutter
- 408/36 . Machine including plural tools
- 408/365 . . Axes of tools moving with work during operation
- 408/367 . . . including means to infeed Tool and means to infeed work or including coaxial tools
- 408/368 . . . Plural work stations
- 408/37 . . Turret of tools
- 408/375 . . Coaxial tools
- 408/378 . . . Coaxial, opposed tools
- 408/3784 with additional, converging Tool
- 408/3788 Plural pairs of coaxial, opposed tools
- 408/3792 with means to sequentially feed tools toward work
- 408/3796 with interconnected means to simultaneously feed tools
- 408/38 . . Plural, simultaneously operational tools
- 408/3806 . . . with plural simultaneously operational work stations
- 408/3809 Successively acting on workpiece
- 408/381 Pivotaly mounted, work-advancing, work-supporting means, pivot-axis parallel to tool-axis
- 408/3811 . . . with provision for adjustment of relationship of axes
- 408/3817 . . . at least one Tool driven by orbiting wrist plate
- 408/3822 . . . at least one Tool including flexible drive connection
- 408/3828 . . . with work-infeed
- 408/3833 . . . with means to advance work relative to Tool
- 408/3839 . . . with presser-foot
- 408/3844 . . . with tool-opposing, work-engaging surface
- 408/385 . . Rotatable about parallel axes
- 408/39 . with radially outer limit of cutting edge moving to define cylinder partially, but not entirely encircled by work
- 408/42 . Axis of Tool moving with work during operation
- 408/44 . with means to apply transient, fluent medium to work or product
- 408/45 . . including Tool with duct
- 408/453 . . . and means to move gaseous fluid by application of vacuum
- 408/455 . . . Conducting channel extending to end of Tool
- 408/458 . . . including nozzle
- 408/46 . . including nozzle
- 408/47 . with work-infeed means
- 408/476 . . Driven by fluid motor
- 408/482 . . Driven by means having sliding engagement therewith
- 408/488 . . Driven by lever or connecting link
- 408/494 . . and gear to drive infeed means
- 408/50 . with product handling or receiving means
- 408/51 . . Ejector
- 408/52 . with work advancing or guiding means
- 408/54 . . Means to intermittently advance work
- 408/545 . . . Rotary, work-supporting means
- 408/55 . with work-engaging structure other than Tool or tool-support
- 408/551 . . with means actuated by work to release Tool from fixed position in Tool support
- 408/552 . . . Adapted to engage work at tool-axis
- 408/553 . . Centering means adapted to be replaced by Tool
- 408/554 . . Magnetic or suction means
- 408/556 . . Tool supporting wheel
- 408/5565 . . . Wheel-axis parallel to tool-axis
- 408/557 . . Frictionally engaging sides of opening in work
- 408/558 . . . Opening coaxial with Tool
- 408/5583 Engaging sides of opening being enlarged by Tool
- 408/5584 Engaging surface axially advanced of tool-action
- 408/5586 Engaging surface subsequent to tool-action on that surface
- 408/5587 Valve fitting
- 408/559 . . Funnel like work-engaging surface cooperating with protuberance on work
- 408/56 . . Adapted to "form" recession in work
- 408/5605 . . . Recession at tool-axis
- 408/561 . . Having tool-opposing, work-engaging surface
- 408/5612 . . . Tool having shiftable tool-axis
- 408/5614 . . . Angularly adjustable surface
- 408/5616 Adjustable about axis that is parallel to tool-axis
- 408/5617 . . . Laterally adjustable surface
- 408/5619 . . . Flexible or concatenated member
- 408/5621 . . . Connected to Tool through opening being enlarged by Tool
- 408/5622 Plural, coaxially opposing, work-engaging means
- 408/5623 . . . with presser foot

- 408/56238 Encompassed by Tool during cut
- 408/56245 including tool-guide [or bushing]
- 408/56253 Base supported machine
- 408/5626 . . . with means to move Tool relative to other work-engaging structure along tool-axis
- 408/5627 Having sliding engagement therewith
- 408/56275 Screw coaxial with Tool
- 408/5628 . . . Tool having screw-thread engaging frame to cause infeed
- 408/563 . . Work-gripping clamp
- 408/5633 . . . Adapted to coaxially grip round work
- 408/56337 Oppositely moving lateral clamps
- 408/5634 Three or more moving clamps
- 408/56343 Base supported clamp
- 408/5635 . . . Oppositely moving lateral clamps
- 408/5638 . . . Adjustable relative to tool-axis
- 408/564 . . Movable relative to Tool along tool-axis
- 408/5647 . . . including means to move Tool
- 408/5653 . . . with means to bias Tool away from work
- 408/566 . . Axially fixed to Tool
- 408/5665 . . . Work-engaging surface parallel to tool-axis
- 408/567 . . Adjustable, tool-guiding jig
- 408/568 . . . Guide bushing
- 408/569 . . Bushing
- 408/57 . . Tool-support with means to receive tool-position indicator
- 408/60 . . Plural tool-assemblages
- 408/62 . . Coaxial
- 408/625 . . . Spring biased
- 408/63 . . Tool or tool-support with torque-applying ratchet
- 408/637 . . with thrust applying means
- 408/639 . . . Reversible ratchet
- 408/641 . . . Double-acting ratchet
- 408/643 . . Reversible ratchet
- 408/65 . . Means to drive tool
- 408/655 . . with specific Tool structure
- 408/66 . . Friction gearing
- 408/665 . . Universal or flexible drive connection to rotate Tool
- 408/67 . . Belt and pulley
- 408/675 . . including means to move Tool along tool-axis
- 408/6757 . . . Fluid means
- 408/6764 . . . Laterally adjustable Tool
- 408/6771 . . . with clutch means
- 408/6774 including plural speed drive
- 408/6776 Actuated by Tool movement
- 408/6779 . . . Rack and pinion
- 408/6786 . . . Manually moved lever
- 408/6793 . . . Screw coaxial with Tool
- 408/68 . . Tool or tool-support with thrust-applying machine-engaging screw
- 408/70 . . Tool or tool-support with torque-applying clutch
- 408/72 . . Friction clutch
- 408/73 . . Tool or tool-support with torque-applying spline
- 408/75 . . Relative motion of splined shaft and tool-support causing release of Tool from operating position
- 408/76 . . Tool-carrier with vibration-damping means
- 408/78 . . Tool of specific diverse material
- 408/81 . . Tool having crystalline cutting edge
- 408/83 . . Tool-support with means to move Tool relative to tool-support
- 408/85 . . to move radially
- 408/852 . . . with Tool releasing trigger
- 408/853 and separate Tool setting means
- 408/854 . . . to move eccentrically mounted Tool
- 408/855 Tool-support including plural, adjustable sections
- 408/856 . . . Moving means including pinion engaging rack-like surface of Tool
- 408/858 . . . Moving means including wedge, screw or cam
- 408/8583 with resiliently urged Tool
- 408/85837 with spring retainer
- 408/85843 Resilient Tool or tool-support
- 408/8585 including oppositely moving, diverging tools
- 408/8588 Axially slidable moving-means
- 408/85884 Tool pivotally mounted on support
- 408/85888 Having axially spaced shoulders
- 408/85892 Screw driven wedge or cam
- 408/85893 Screw with axis radially spaced from tool-axis
- 408/85894 Annular wedge-collar
- 408/858945 Axially spaced tool-retaining collars
- 408/858946 with travelling wedge
- 408/858948 Tool having axially facing, collar-receiving groove
- 408/858949 including two-piece collar
- 408/85895 Traveling wedge
- 408/858953 Interfitting, tool-retaining wedge
- 408/858955 including separable interfitting element
- 408/858957 Having externally threaded shank connected to tool-support
- 408/85896 Annular wedge-collar
- 408/859 Rotary cam
- 408/8591 Scroll plate
- 408/85913 Volute scroll
- 408/85915 with means to rotate scroll
- 408/85918 with adjustable means to limit scroll movement
- 408/8592 Coaxial with tool-axis
- 408/8593 Wedge moving perpendicular to tool-axis
- 408/8595 Pivotal tool-support
- 408/8598 Screw extending perpendicular to tool-axis
- 408/85985 Plural tools moved by diametrically opposed screws
- 408/85988 Screws mounted on common shaft
- 408/8599 Tool having pitch-stabilizing ridge
- 408/85995 with tool-holding clamp and clamp actuator
- 408/86 . . Tool-support with means to permit positioning of the Tool relative to support
- 408/865 . . Pivotal Tool
- 408/868 . . . with multiple cutting positions
- 408/87 . . Tool having stepped cutting edges
- 408/8713 . . . including means to permit both radial and axial positioning of edge
- 408/8725 . . . including means to permit relative axial positioning of edges
- 408/8729 with work-engaging structure other than cutting edge
- 408/8734 including central Tool axially movable relative to support
- 408/8738 . . . including inverse cutting edge
- 408/875 . . including means to "form" depression in work

- 408/88 . . including central-lead
- 408/885 . . including tool-holding clamp and clamp actuator
- 408/888 . . . Movable along tool-axis
- 408/89 . Tool or Tool with support
- 408/892 . . with work-engaging structure detachable from cutting edge
- 408/8923 . . . Removable central lead
- 408/8925 . . . Depth-limiting member
- 408/8928 . . . Adjustable
- 408/893 . . Hollow milling Tool
- 408/895 . . Having axial, core-receiving central portion
- 408/8953 . . . with lateral outlet
- 408/8957 . . . and having stepped cutting edges
- 408/896 . . Having product-receiving chamber
- 408/8967 . . . and central lead-screw
- 408/8973 . . . and central lead
- 408/898 . . Helical ribbon Tool
- 408/899 . . Having inversely angled cutting edge
- 408/90 . . . and axially extending peripheral cutting spur
- 408/901 . . Having axially extending peripheral cutting spur
- 408/902 . . Having central lead-screw
- 408/904 . . with pitch-stabilizing ridge
- 408/9042 . . . and radially spaced cutting edge
- 408/9044 . . . including cutting teeth of different width
- 408/9045 and different root circles
- 408/9046 . . . including tapered section
- 408/90467 and relieved cutting edge
- 408/90473 including work-embracing cutting edges
- 408/9048 . . . Extending outwardly from tool-axis
- 408/905 . . Having stepped cutting edges
- 408/906 . . . Axially spaced
- 408/9065 with central lead
- 408/907 . . including detailed shank
- 408/909 . . Having peripherally spaced cutting edges
- 408/9093 . . . Each formed by a pair of axially facing facets
- 408/9095 . . . with axially extending relief channel
- 408/9097 Spiral channel
- 408/9098 . . . with means to retain Tool to support
- 408/90987 Wedge means
- 408/90993 Screw driven means
- 408/91 . Machine frame
- 408/92 . . with counterweight mechanism
- 408/93 . . including pivotally mounted tool-carrier
- 408/935 . . . including laterally movable tool-carrier
- 408/94 . Tool-support
- 408/95 . . with tool-retaining means
- 408/953 . . . Clamping jaws
- 408/957 . . . Tool adapter
- 408/96 . Miscellaneous
- 408/97 . . Drill bushings
- 408/98 . . Drill guide
- 408/99 . . Adjustable stop
- 409/100795 . . with work or product advancing
- 409/100954 . . . Utilizing transfer arm
- 409/101113 . . Gear chamfering or deburring
- 409/101272 . . . Using relatively reciprocating or oscillating cutter
- 409/101431 . . Gear tooth shape generating
- 409/10159 . . . Hobbing
- 409/101749 Process
- 409/101908 Generating tooth for bevel gear
- 409/102067 including means to shift hob between cutting passes
- 409/102226 with control means energized in response to activator stimulated by condition sensor
- 409/102385 Plural hobs
- 409/102544 including infeed means
- 409/102703 to infeed along axis of work rotation
- 409/102862 Infeed of cutter
- 409/103021 and infeed radially of axis of work rotation
- 409/10318 Vertically
- 409/103339 to infeed radially of axis of work rotation
- 409/103498 Infeed of cutter
- 409/103657 and infeed tangentially of work axis
- 409/103816 . . . Milling with radial faced tool
- 409/103975 Process
- 409/104134 Adapted to cut bevel gear
- 409/104293 with means to continuously rotate work and means to co-form all teeth of gear
- 409/104452 Bevel gear having nonparallel opposing tooth flanks
- 409/104611 including rotary cutter cradle
- 409/10477 by relative axial movement between synchronously indexing or rotating work and cutter
- 409/104929 Crowning
- 409/105088 Displacing cutter axially relative to work [e.g., gear shaving, etc.]
- 409/105247 Using gear shaper-cutter
- 409/105406 Plural distinct cutting edges
- 409/105565 Cutting rotating work, the axis of which lies in a plane intersecting the cutter axis
- 409/105724 . . . Gear shaving
- 409/105883 . . . Using rotary cutter
- 409/106042 having axially directed cutting edge
- 409/106201 Plural rotary cutters
- 409/10636 On reciprocating carriage
- 409/106519 . . . Using reciprocating or oscillating cutter
- 409/106678 Bevel gear cutting
- 409/106837 Dual cutters
- 409/106996 Double acting cutter
- 409/107155 Rectilinearly reciprocating cutter
- 409/107314 Cutter comprising a rack
- 409/107473 . . . Making a noncircular gear, worm, rotor, or a planar-faced gear
- 409/107632 . . Gear shaving
- 409/107791 . . Using rotary cutter
- 409/10795 . . . Process
- 409/108109 . . . End mill
- 409/108268 Radially faced
- 409/108427 Using plural, selectively usable tools
- 409/108586 . . . Plural rotary cutters
- 409/108745 . . . Cutting action along work axis

Former US Class 409 Series

- 409/00 Gear cutting, milling, or planing**
- 409/10 . Gear cutting
- 409/100159 . . with regulation of operation by use of templet, card, or other replaceable information supply
- 409/100318 . . . including follower for templet
- 409/100477 . . and burnishing simultaneously
- 409/100636 . . with compensation for backlash in drive means

409/108904	Cutting action intersecting work axis	409/30196	to actuate electrically driven work or tool moving means
409/109063 . . .	Using reciprocating or oscillating cutter	409/302016	to actuate fluid driven work or tool moving means
409/109222 . . .	Broach	409/302072	including tracer adapted to trigger fluid energy
409/109381 . . .	including circumferentially disposed cutting edges	409/302128	to actuate fluid driven work or tool moving means
409/10954 . . .	Work dividing or checking of work position or division	409/302184	including cutter and tracer fixed to move laterally together
409/109699 . . .	with work clamping	409/30224	and provision for circumferential relative movement of cutter and work
409/20 . . .	with refurbishing of cutter	409/302296	including plural cutters
409/30 . . .	Milling	409/302352	including plural cutters
409/300056 . . .	Thread or helix generating	409/302408	including cross-slide tool carrier
409/300112 . . .	Process	409/302464	including plural cutters
409/300168 . . .	with means to regulate operation by use of templet, card, or other replaceable information supply	409/30252	including cross-slide tool carrier
409/300224	Complete cycle	409/302576	with means to support templet above or under work
409/30028	to regulate cutting depth [e.g., relief, taper, etc.]	409/302632	with provision for circumferential relative movement of cutter and work
409/300336	to regulate rate of motion [e.g., stopping, etc.]	409/302688	with provision for circumferential relative movement of cutter and work
409/300392 . . .	with nonthread or nonhelix generating, milling cutter	409/302744	and means for operation without manual intervention
409/300448 . . .	with means to advance work or product	409/3028	including tracer adapted to trigger electrical or fluid energy
409/300504 . . .	Plural cutters or work holders	409/302856	For using planar templet in cutting profile [e.g., contour map from planar map, etc.]
409/30056 . . .	with planetary cutter	409/302912	including means for operation without manual intervention
409/300616 . . .	Work means to move work axially and means to interrelate work movement with cutter rotation	409/302968	including means for operation without manual intervention
409/300672 . . .	with means to rotate work and means to interrelatedly infeed the work relative to the cutter	409/303024	including simultaneously usable plural tracers or including tracer adapted to simultaneously use plural templets
409/300728	Means to infeed the cutter	409/30308	to make a double curvature foil
409/300784 . . .	with means to circumferentially adjust the position of the cutter with respect to the work	409/303136	to make a double curvature foil
409/30084 . . .	with regulation of operation by templet, card, or other replaceable information supply	409/303192	including cutter and tracer fixed to move together
409/300896 . . .	with sensing of numerical information and regulation without mechanical connection between sensing means and regulated means [i.e., numerical control]	409/303248	with provision for circumferential relative movement of cutter and work
409/300952	to cut lock key	409/303304	and provision for circumferential relative movement of cutter and work
409/301008	Using templet other than a key	409/30336	including cutter and tracer fixed to move together
409/301064	Complete cycle	409/303416	Templet, tracer, or cutter
409/30112	Process	409/303472	Tracer
409/301176	Reproducing means	409/303528	Adapted to trigger electrical energy
409/301232	including pantograph cutter-carrier	409/303584	Photocell
409/301288	and means to move work at work station	409/30364	Adapted to trigger fluid energy
409/301344	About work axis	409/303696	Templet
409/3014	Pivotally supported for vertical movement	409/303752	Process
409/301456	and means to counterbalance carrier	409/303808	including infeeding
409/301512	including plural cutters	409/303864	with means to weigh or test work or product
409/301568	by use of pivotally supported tracer	409/30392	with means to protect operative or machine [e.g., guard, safety device, etc.]
409/301624	Duplicating means	409/303976	with means to control temperature or lubricate
409/30168	with means for operation without manual intervention	409/304032	Cutter or work
409/301736	to make a double curvature foil	409/304088	with means to remove chip
409/301792	including means to sense optical or magnetic image	409/304144	Means to trim edge
409/301848	with means to support templet above or under work	409/3042	Means to remove scale or raised surface imperfection
409/301904	including tracer adapted to trigger electrical energy		

- 409/304256 . . . Means to remove flash or burr
- 409/304312 . . . with means to dampen vibration
- 409/304368 . . . Means to mill epitrochoidal shape
- 409/304424 . . . Means for internal milling
- 409/304448 . . . with detachable or auxiliary cutter support to convert cutting action
- 409/304536 . . . including means to infeed work to cutter
- 409/304592 . . . with compensation for backlash in drive means
- 409/304648 . . . with control means energized in response to activator stimulated by condition sensor
- 409/304704 In response to cutter or cutter carriage
- 409/30476 In response to work or work carriage
- 409/304816 to control rate of infeed or return
- 409/304872 to control limit of infeed
- 409/304928 Adapted to hydraulically or pneumatically stimulate control
- 409/304984 Adapted to electrically stimulate control
- 409/30504 to control rate of infeed or return
- 409/305096 to effect stopping of infeed
- 409/305152 . . . with means to change rate of infeed
- 409/305208 . . . Means to mill indeterminate length work
- 409/305264 . . . Multiple work stations
- 409/30532 . . . with means to advance work or product
- 409/305376 Vertically
- 409/305432 Endless or orbital work or product advancing means
- 409/305488 . . . to reciprocate or oscillate work
- 409/305544 . . . with work holder
- 409/3056 and means to selectively position work
- 409/305656 including means to support work for rotation during operation
- 409/305712 and including means to infeed cutter toward work axis
- 409/305768 with linear movement of work
- 409/305824 with angular movement of work
- 409/30588 . . . including friction gearing drive
- 409/305936 . . . including fluid drive
- 409/305992 . . . with means to effect stopping upon completion of operation
- 409/306048 . . . with means to advance work or product
- 409/306104 . . . Endless or orbital work or product advancing means
- 409/30616 . . . with means to precisely reposition work
- 409/306216 . . . Randomly manipulated, work supported, or work following device
- 409/306272 . . . For machining commutator
- 409/306328 . . . For cutting longitudinal groove in shaft [e.g., keyway, etc.]
- 409/306384 . . . with work supported guide means
- 409/30644 to guide tool to move in arcuate path
- 409/306496 . . . with work follower
- 409/306552 . . . Randomly manipulated
- 409/306608 End mill [e.g., router, etc.]
- 409/306664 . . . including means to infeed rotary cutter toward work
- 409/30672 . . . with means to limit penetration into work
- 409/306776 . . . Axially
- 409/306832 with infeed control means energized in response to activator stimulated by condition sensor
- 409/306888 In response to cutter condition
- 409/306944 In response to work condition
- 409/307 with work holder
- 409/307056 and laterally
- 409/307112 Simultaneously
- 409/307168 Plural cutters
- 409/307224 with infeed control means energized in response to activator stimulated by condition sensor
- 409/30728 In response to cutter condition
- 409/307336 In response to work condition
- 409/307392 with means to change rate of infeed
- 409/307448 with work holder
- 409/307504 Indexable
- 409/30756 Machining arcuate surface
- 409/307616 with means to move cutter eccentrically
- 409/307672 Angularly adjustable cutter head
- 409/307728 including gantry-type cutter-carrier
- 409/307784 Plural cutters
- 409/30784 . . . including means to adjustably position cutter
- 409/307896 . . . with work holder or guide
- 409/307952 Linear adjustment
- 409/308008 with control for adjustment means responsive to activator stimulated by condition sensor
- 409/308064 Responsive to position of cutter
- 409/30812 and means to clamp cutter support in adjusted position
- 409/308176 with position indicator or limit means
- 409/308232 and angular adjustment
- 409/308288 including gantry-type cutter-carrier
- 409/308344 Plural cutters
- 409/3084 with position indicator or limit means
- 409/308456 with right angle cutter drive
- 409/308512 Compound angular adjustment
- 409/308568 Plural cutters
- 409/308624 . . . with limit means to aid in positioning of cutter bit or work [e.g., gauge, stop, etc.]
- 409/30868 . . . Work support
- 409/308736 . . . with position indicator or stop
- 409/308792 Indexable
- 409/308848 including dividing head
- 409/308904 Multiple row dividing head
- 409/30896 with angular adjustment
- 409/309016 with work holder or guide
- 409/309072 including cutter limited to rotary motion
- 409/309128 with means to adjust work support vertically
- 409/309184 . . . including cutter limited to rotary motion
- 409/30924 Cutter turning about vertical axis
- 409/309296 . . . Detachable or repositionable tool head
- 409/309352 . . . Cutter spindle or spindle support
- 409/309408 with cutter holder
- 409/309464 and draw bar
- 409/30952 . . . with cutter holder
- 409/309576 . . . Machine frame
- 409/309632 Overarm harness structure
- 409/309688 including counterbalancing means
- 409/309744 including means to compensate for deformation
- 409/3098 Deflection of cutter spindle
- 409/309856 Convertible from lathe
- 409/309912 including relatively movable components and means to relatively immobilize these components
- 409/309968 . . . Tailstock
- 409/40 . . . Broaching

- 409/400175 . . . Process
- 409/40035 . . . with control means energized in response to activator stimulated by condition sensor
- 409/400525 . . . Responsive to condition of work or product
- 409/4007 . . . with means to distribute cutter infeed force
- 409/400875 . . . with means to select cutter or to select or modify cutter drive
- 409/40105 . . . with means to clean, lubricate, or modify temperature of work or cutter
- 409/401225 . . . with product handling means
- 409/4014 . . . Between plural broaching stations
- 409/401575 . . . Means to eject broached product
- 409/40175 . . . Chip removal means
- 409/401925 . . . with means to protect operative or machine [e.g., guard, safety device, etc.]
- 409/4021 . . . with safety means for overload or safety interlock
- 409/402275 . . . with work immobilizer and means to activate work immobilizer interrelated with cutter infeed, work infeed, or work advance
- 409/40245 . . . with work infeed or advancing means and means to clamp the work thereto, which clamping means is interrelated with work or cutter infeed
- 409/402625 . . . Means to remove flash or burr
- 409/4028 . . . Means for cutting groove
- 409/402975 . . . Arcuate groove in cylindrical surface
- 409/40315 . . . Rifling
- 409/403325 . . . Orbital carrier for cutter
- 409/4035 . . . Orbital carrier for work
- 409/403675 . . . with means to cyclically manipulate cutter or cutter support
- 409/40385 . . . to reorient, introduce, or remove cutter
- 409/404025 . . . Cutter released to interim support at termination of cutting stroke
- 409/4042 . . . to remove and return cutter to cutter support
- 409/404375 . . . with plural cutters
- 409/40455 . . . with means to advance, infeed, or manipulate work
- 409/404725 . . . Interrelated with cutter infeed
- 409/4049 . . . including means supporting work and additional means opposing infeed force
- 409/405075 . . . including work indexing means for sequential cutting of different surfaces of a single workpiece
- 409/40525 . . . including work indexing means for sequential cutting of surfaces of different workpieces
- 409/405425 . . . with means to retract work from path of tool's idle return stroke
- 409/4056 . . . to infeed work past cutter
- 409/405775 . . . with means to hold work during cutting
- 409/40595 . . . including work clamping means
- 409/406125 . . . with means to adjust or facilitate adjustment of work or work holder
- 409/4063 . . . with means on work or work holder to guide cutter during infeed
- 409/406475 . . . Cutter infeed means
- 409/40665 . . . Imparting rectilinear motion to cutter
- 409/406825 . . . and rotary motion to cutter
- 409/407 . . . Fluid powered means
- 409/407175 . . . Rack means
- 409/40735 . . . Screw means
- 409/407525 . . . Machine frame
- 409/4077 . . . Cutter support or guide
- 409/50 . . . Planing
- 409/500164 . . . with regulation of operation by templet, card, or other replaceable information supply
- 409/500328 . . . including use of tracer adapted to trigger electrical or fluid energy
- 409/500492 . . . including provision for circumferential relative movement of cutter and work
- 409/500656 . . . including provision for circumferential relative movement of cutter and work
- 409/50082 . . . Process
- 409/500984 . . . with means to lubricate
- 409/501148 . . . with product handling means
- 409/501312 . . . Randomly manipulated, work supported, or work following device
- 409/501476 . . . Means to remove flash or burr
- 409/50164 . . . Elongated work
- 409/501804 . . . Flash or burr inside hollow work
- 409/501968 . . . Transverse burr
- 409/502132 . . . Flat work
- 409/502296 . . . of commutator
- 409/50246 . . . Means for trimming edge [e.g., chamfering, scarfing, etc.]
- 409/502624 . . . Means for cutting groove
- 409/502788 . . . Arcuate groove
- 409/502952 . . . For rifling
- 409/503116 . . . Inside hollow work
- 409/50328 . . . Means for shaving by blade spanning work surface
- 409/503444 . . . Concave work surface [e.g., bearing, stereotype printing plate, etc.]
- 409/503608 . . . Circumferential surface
- 409/503772 . . . including rack driven infeed means
- 409/503936 . . . including roller infeed means
- 409/5041 . . . Means for cutting arcuate surface
- 409/504264 . . . Cycloidal surface
- 409/504428 . . . with work infeed and means to arcuately reposition the cutter
- 409/504592 . . . with work infeed and means to arcuately reposition the work
- 409/504756 . . . with means to relatively infeed cutter and work
- 409/50492 . . . and means to rotate work and cutter at same rate about converging axes
- 409/505084 . . . with plural sequentially acting cutters or with double acting cutter
- 409/505248 . . . and means to vary rate of infeed
- 409/505412 . . . Reciprocating work infeed means
- 409/505576 . . . with fluid-driven bed
- 409/50574 . . . with rack-driven bed
- 409/505904 . . . with screw-driven bed
- 409/506068 . . . and means to permit repositioning of cutter laterally
- 409/506232 . . . Reciprocating cutter infeed means
- 409/506396 . . . Reciprocating cutter horizontally
- 409/50656 . . . with work support and lead screw to reposition work support
- 409/506724 . . . with fluid-powered means to drive cutter
- 409/506888 . . . with pivoting link to drive cutter
- 409/507052 . . . Link driven by crank
- 409/507216 . . . with rack to drive cutter
- 409/50738 . . . with screw to drive cutter
- 409/507544 . . . with link or cam to drive cutter

409/507708 with rack to drive cutter
 409/507872 . . . including means causing return stroke
 409/508036 . . Machine frame
 409/5082 . . . Means to permit repositioning of cutter
 409/508364 Laterally
 409/508528 Plural independently positioned cutters
 409/508692 including clutch
 409/508856 including repositioning means and means to effect stopping thereof
 409/50902 . . . including relatively movable components and means to relatively immobilize these components
 409/509184 . . . Work table
 409/509348 . . Tool head
 409/509512 . . . with selectively usable cutting edges
 409/509676 . . . with means to permit repositioning of cutting for idle return stroke
 409/50984 comprising pivotable cutter or cutter support

428/12118 Nonparticulate component has Ni-, Cu-, or Zn-base
 428/12125 Nonparticulate component has Fe-base
 428/12132 Next to Fe-containing particles
 428/12139 Nonmetal particles in particulate component
 428/12146 Nonmetal particles in a component
 428/12153 . . . Interconnected void structure [e.g., permeable, etc.]
 428/1216 . . . Continuous interengaged phases of plural metals, or oriented fiber containing
 428/12167 Nonmetal containing
 428/12174 Mo or W containing
 428/12181 . . Composite powder [e.g., coated, etc.]
 428/12188 . . having marginal feature for indexing or weakened portion for severing
 428/12194 . . . For severing perpendicular to longitudinal dimension
 428/12201 . . Width or thickness variation or marginal cuts repeating longitudinally
 428/12208 . . . Variation in both width and thickness
 428/12215 . . . Marginal slots [i.e., deeper than wide]
 428/12222 . . Shaped configuration for melting [e.g., package, etc.]
 428/12229 . . Intermediate article [e.g., blank, etc.]
 428/12236 . . . Panel having nonrectangular perimeter
 428/12243 Disk
 428/1225 Symmetrical
 428/12257 Only one plane of symmetry
 428/12264 . . . having outward flange, gripping means or interlocking feature
 428/12271 . . . having discrete fastener, marginal fastening, taper, or end structure
 428/12278 Same structure at both ends of plural taper
 428/12285 Single taper [e.g., ingot, etc.]
 428/12292 . . Workpiece with longitudinal passageway or stopweld material [e.g., for tubular stock, etc.]
 428/12299 . . Workpiece mimicking finished stock having nonrectangular or noncircular cross section
 428/12306 . . Workpiece of parallel, nonfastened components [e.g., fagot, pile, etc.]
 428/12313 . . . Arranged to avoid lateral displacement
 428/12319 . . . Composite
 428/12326 . . with provision for limited relative movement between components
 428/12333 . . Helical or with helical component
 428/1234 . . Honeycomb, or with grain orientation or elongated elements in defined angular relationship in respective components [e.g., parallel, inter- secting, etc.]
 428/12347 . . Plural layers discontinuously bonded [e.g., spot-weld, mechanical fastener, etc.]
 428/12354 . . Nonplanar, uniform-thickness material having symmetrical channel shape or reverse fold [e.g., making acute angle, etc.]
 428/12361 . . having aperture or cut
 428/12368 . . . Struck-out portion type
 428/12375 . . having member which crosses the plane of another member [e.g., T or X cross section, etc.]
 428/12382 . . Defined configuration of both thickness and nonthickness surface or angle therebetween [e.g., rounded corners, etc.]

Former US Class 428 Series**428/00 Stock material or miscellaneous articles**

428/11 . . Magnetic recording head
 428/1107 . . Magneto resistive
 428/1114 . . . having tunnel junction effect
 428/1121 . . . Multilayer
 428/1129 Super lattice [e.g., giant magneto resistance [GMR] or colossal magneto resistance [CMR], etc.]
 428/1136 . . . Single film
 428/1143 . . . with defined structural feature
 428/115 . . Magnetic layer composition
 428/1157 . . Substrate composition
 428/1164 . . with protective film
 428/1171 . . with defined laminate structural detail
 428/1179 . . . Head with slider structure
 428/1186 . . . with head pole component
 428/1193 . . with interlaminar component [e.g., adhesion layer, etc.]
 428/12 . . All metal or with adjacent metals
 428/12007 . . Component of composite having metal continuous phase interengaged with nonmetal continuous phase
 428/12014 . . having metal particles
 428/12021 . . . having composition or density gradient or differential porosity
 428/12028 . . . Composite; i.e., plural, adjacent, spatially distinct metal components [e.g., layers, etc.]
 428/12035 Fiber, asbestos, or cellulose in or next to particulate component
 428/12042 Porous component
 428/12049 Nonmetal component
 428/12056 Entirely inorganic
 428/12063 Nonparticulate metal component
 428/12069 Plural nonparticulate metal components
 428/12076 Next to each other
 428/12083 Nonmetal in particulate component
 428/1209 Plural particulate metal components
 428/12097 Nonparticulate component encloses particles
 428/12104 Particles discontinuous
 428/12111 Separated by nonmetal matrix or binder [e.g., welding electrode, etc.]

428/12389 . . .	having variation in thickness	428/12715	Next to Group IB metal-base component
428/12396 . . .	Discontinuous surface component	428/12722	Next to Group VIII metal-base component
428/12403 . . .	Longitudinally smooth and symmetrical	428/12729	Group IIA metal-base component
428/1241 . . .	Nonplanar uniform thickness or nonlinear uniform diameter [e.g., L-shape]	428/12736	Al-base component
428/12417 . . .	Intersecting corrugating or dimples not in a single line [e.g., waffle form, etc.]	428/12743	Next to refractory [Group IVB, VB, or VIB] metal-base component
428/12424 . . .	Mass of only fibers	428/1275	Next to Group VIII or IB metal-base component
428/12431 . . .	Foil or filament smaller than 6 mils	428/12757	Fe
428/12438 . . .	Composite	428/12764	Next to Al-base component
428/12444 . . .	Embodying fibers interengaged or between layers [e.g., paper, etc.]	428/12771	Transition metal-base component
428/12451 . . .	Macroscopically anomalous interface between layers	428/12778	Alternative base metals from diverse categories
428/12458 . . .	having composition, density, or hardness gradient	428/12785	Group IIB metal-base component
428/12465 . . .	having magnetic properties, or preformed fiber orientation coordinate with shape	428/12792	Zn-base component
428/12472 . . .	Microscopic interfacial wave or roughness	428/12799	Next to Fe-base component [e.g., galvanized]
428/12479 . . .	Porous [e.g., foamed, spongy, cracked, etc.]	428/12806	Refractory [Group IVB, VB, or VIB] metal-base component
428/12486 . . .	Laterally noncoextensive components [e.g., embedded, etc.]	428/12812	Diverse refractory group metal-base components: alternative to or next to each other
428/12493 . . .	Composite; i.e., plural, adjacent, spatially distinct metal components [e.g., layers, joint, etc.]	428/12819	Group VB metal-base component
428/125 . . .	Deflectable by temperature change [e.g., thermostat element]	428/12826	Group VIB metal-base component
428/12507	More than two components	428/12833	Alternative to or next to each other
428/12514	One component Cu-based	428/1284	W-base component
428/12521	Both components Fe-based with more than 10% Ni	428/12847	Cr-base component
428/12528	Semiconductor component	428/12854	Next to Co-, Fe-, or Ni-base component
428/12535	with additional, spatially distinct nonmetal component	428/12861	Group VIII or IB metal-base component
428/12542	More than one such component	428/12868	Group IB metal-base component alternative to platinum group metal-base component [e.g., precious metal, etc.]
428/12549	Adjacent to each other	428/12875	Platinum group metal-base component
428/12556	Organic component	428/12882	Cu-base component alternative to Ag-, Au-, or Ni-base component
428/12562	Elastomer	428/12889	Au-base component
428/12569	Synthetic resin	428/12896	Ag-base component
428/12576	Boride, carbide or nitride component	428/12903	Cu-base component
428/12583	Component contains compound of adjacent metal	428/1291	Next to Co-, Cu-, or Ni-base component
428/1259	Oxide	428/12917	Next to Fe-base component
428/12597	Noncrystalline silica or noncrystalline plural-oxide component [e.g., glass, etc.]	428/12924	Fe-base has 0.01-1.7% carbon [i.e., steel]
428/12604	Film [e.g., glaze, etc.]	428/12931	Co-, Fe-, or Ni-base components, alternative to each other
428/12611	Oxide-containing component	428/12937	Co- or Ni-base component next to Fe-base component
428/12618	Plural oxides	428/12944	Ni-base component
428/12625	Free carbon containing component	428/12951	Fe-base component
428/12632	Four or more distinct components with alternate recurrence of each type component	428/12958	Next to Fe-base component
428/12639	Adjacent, identical composition, components	428/12965	Both containing 0.01-1.7% carbon [i.e., steel]
428/12646	Group VIII or IB metal-base	428/12972	Containing 0.01-1.7% carbon [i.e., steel]
428/12653	Fe, containing 0.01-1.7% carbon [i.e., steel]	428/12979	Containing more than 10% nonferrous elements [e.g., high alloy, stainless]
428/1266	O, S, or organic compound in metal component	428/12986	Adjacent functionally defined components
428/12667	Oxide of transition metal or Al	428/12993	Surface feature [e.g., rough, mirror]
428/12674	Ge- or Si-base component	428/13	Hollow or container type article [e.g., tube, vase, etc.]
428/12681	Ga-, In-, Tl- or Group VA metal-base component	428/1303	Paper containing [e.g., paperboard, cardboard, fiberboard, etc.]
428/12687	Pb- and Sn-base components: alternative to or next to each other	428/1307	Bag or tubular film [e.g., pouch, flexible food casing, envelope, etc.]
428/12694	and next to Cu- or Fe-base component		
428/12701	Pb-base component		
428/12708	Sn-base component		

- 428/131 . . Glass, ceramic, or sintered, fused, fired, or calcined metal oxide or metal carbide containing [e.g., porcelain, brick, cement, etc.]
- 428/1314 . . . Contains fabric, fiber particle, or filament made of glass, ceramic, or sintered, fused, fired, or calcined metal oxide, or metal carbide or other inorganic compound [e.g., fiber glass, mineral fiber, sand, etc.]
- 428/1317 . . . Multilayer [continuous layer]
- 428/1321 Polymer or resin containing [i.e., natural or synthetic]
- 428/1324 . . Flexible food casing [e.g., sausage type, etc.]
- 428/1328 . . Shrinkable or shrunk [e.g., due to heat, solvent, volatile agent, restraint removal, etc.]
- 428/1331 . . . Single layer [continuous layer]
- 428/1334 . . Nonself-supporting tubular film or bag [e.g., pouch, envelope, packet, etc.]
- 428/1338 . . . Elemental metal containing
- 428/1341 . . . Contains vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit
- 428/1345 . . . Single layer [continuous layer]
- 428/1348 . . Cellular material derived from plant or animal source [e.g., wood, cotton, wool, leather, etc.]
- 428/1352 . . Polymer or resin containing [i.e., natural or synthetic]
- 428/1355 . . . Elemental metal containing [e.g., substrate, foil, film, coating, etc.]
- 428/1359 Three or more layers [continuous layer]
- 428/1362 . . . Textile, fabric, cloth, or pile containing [e.g., web, net, woven, knitted, mesh, nonwoven, matted, etc.]
- 428/1366 Textile, fabric, cloth, or pile is sandwiched between two distinct layers of material unlike the textile, fabric, cloth, or pile layer
- 428/1369 . . . Fiber or fibers wound around each other or into a self-sustaining shape [e.g., yarn, braid, fibers shaped around a core, etc.]
- 428/1372 . . . Randomly noninterengaged or randomly contacting fibers, filaments, particles, or flakes
- 428/1376 . . . Foam or porous material containing
- 428/1379 . . . Contains vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit
- 428/1383 Vapor or gas barrier, polymer derived from vinyl chloride or vinylidene chloride, or polymer containing a vinyl alcohol unit is sandwiched between layers [continuous layer]
- 428/1386 . . . Natural or synthetic rubber or rubber-like compound containing
- 428/139 . . . Open-ended, self-supporting conduit, cylinder, or tube-type article
- 428/1393 Multilayer [continuous layer]
- 428/1397 . . . Single layer [continuous layer]
- 428/14 . Layer or component removable to expose adhesive
- 428/1405 . . Capsule or particulate matter containing [e.g., sphere, flake, microballoon, etc.]
- 428/141 . . Bituminous
- 428/1414 . . Ceramic, glass, glasslike, vitreous
- 428/1419 . . Wax containing
- 428/1424 . . Halogen containing compound
- 428/1429 . . . Fluorine
- 428/1433 . . . Coloring agent containing
- 428/1438 . . Metal containing
- 428/1443 . . . Aluminum
- 428/1448 . . . Coloring agent containing
- 428/1452 . . Polymer derived only from ethylenically unsaturated monomer
- 428/1457 . . . Silicon
- 428/1462 . . Polymer derived from material having at least one acrylic or alkacrylic group or the nitrile or amide derivative thereof [e.g., acrylamide, acrylate ester, etc.]
- 428/1467 . . Coloring agent
- 428/1471 . . Protective layer
- 428/1476 . . Release layer
- 428/1481 . . Dissimilar adhesives
- 428/1486 . . Ornamental, decorative, pattern, or indicia
- 428/149 . . Sectional layer removable
- 428/1495 . . . Adhesive is on removable layer
- 428/15 . Sheet, web, or layer weakened to permit separation through thickness
- 428/16 . Two dimensionally sectional layer
- 428/161 . . with frame, casing, or perimeter structure
- 428/162 . . Transparent or translucent layer or section
- 428/163 . . Next to unitary web or sheet of equal or greater extent
- 428/164 . . . Continuous two dimensionally sectional layer
- 428/166 Glass, ceramic, or metal sections [e.g., floor or wall tile, etc.]
- 428/167 Cellulosic sections [e.g., parquet floor, etc.]
- 428/168 . . . Nonrectangular
- 428/169 . . Sections connected flexibly with external fastener
- 428/17 . Three or more coplanar interfitted sections with securing means
- 428/18 . Longitudinally sectional layer of three or more sections
- 428/183 . . Next to unitary sheet of equal or greater extent
- 428/187 . . . Continuous sectional layer
- 428/19 . Sheets or webs edge spliced or joined
- 428/192 . . Sheets or webs coplanar
- 428/193 . . . Double faced corrugated sheets or webs connected
- 428/195 . . . Beveled, stepped, or skived in thickness
- 428/197 . . . with noncoplanar reinforcement
- 428/198 Pile or nap surface sheets connected
- 428/20 . Patched hole or depression
- 428/21 . Circular sheet or circular blank
- 428/211 . . Gear
- 428/213 . . Frictional
- 428/214 . . End closure
- 428/215 . . Seal, gasket, or packing
- 428/216 . . Ornamental, decorative, pattern, or indicia
- 428/218 . . Aperture containing
- 428/219 . . Edge structure
- 428/22 . Nonparticulate element embedded or inlaid in substrate and visible
- 428/23 . Sheet including cover or casing
- 428/231 . . Filled with gas other than air; or under vacuum
- 428/232 . . Encased layer derived from inorganic settable ingredient
- 428/233 . . Foamed or expanded material encased
- 428/234 . . including elements cooperating to form cells
- 428/236 . . . Honeycomb type cells extend perpendicularly to nonthickness layer

- 428/237 . . Noninterengaged fibered material encased [e.g., mat, batt, etc.]
- 428/238 . . . Metal cover or casing
- 428/239 . . Complete cover or casing
- 428/23907 . Pile or nap type surface or component
- 428/23914 . . Interlaminar
- 428/23921 . . With particles
- 428/23929 . . Edge feature or configured or discontinuous surface
- 428/23936 . . . Differential pile length or surface
- 428/23943 . . Flock surface
- 428/2395 . . Nap type surface
- 428/23957 . . Particular shape or structure of pile
- 428/23964 . . . U-, V-, or W-shaped or continuous strand, filamentary material
- 428/23971 Continuous strand with adhesive bond to backing
- 428/23979 . . Particular backing structure or composition
- 428/23986 . . With coating, impregnation, or bond
- 428/23993 . . Composition of pile or adhesive
- 428/24 . Structurally defined web or sheet [e.g., overall dimension, etc.]
- 428/24008 . . including fastener for attaching to external surface
- 428/24017 . . . Hook or barb
- 428/24025 . . Superposed movable attached layers or components
- 428/24033 . . including stitching and discrete fastener[s], coating or bond
- 428/24041 . . . Discontinuous or differential coating, impregnation, or bond
- 428/2405 Coating, impregnation, or bond in stitching zone only
- 428/24058 . . including grain, strips, or filamentary elements in respective layers or components in angular relation
- 428/24066 . . . Wood grain
- 428/24074 . . . Strand or strand-portions
- 428/24083 Nonlinear strands or strand-portions
- 428/24091 with additional layer[s]
- 428/24099 On each side of strands or strand-portions
- 428/24107 including mechanically interengaged strands, strand-portions or strand-like strips
- 428/24116 Oblique to direction of web
- 428/24124 . . . Fibers
- 428/24132 . . including grain, strips, or filamentary elements in different layers or components parallel
- 428/2414 . . including fringe
- 428/24149 . . Honeycomb-like
- 428/24157 . . . Filled honeycomb cells [e.g., solid substance in cavities, etc.]
- 428/24165 . . . Hexagonally shaped cavities
- 428/24174 . . including sheet or component perpendicular to plane of web or sheet
- 428/24182 . . . Inward from edge of web or sheet
- 428/2419 . . Fold at edge
- 428/24198 . . . Channel-shaped edge component [e.g., binding, etc.]
- 428/24207 . . . with strand[s] or strand-portion[s] between layers [e.g., upholstery trim, etc.]
- 428/24215 . . . Acute or reverse fold of exterior component
- 428/24223 Embedded in body of web
- 428/24231 At opposed marginal edges
- 428/2424 Annular cover
- 428/24248 One piece
- 428/24256 Abutted or lapped seam
- 428/24264 . . . Particular fold structure [e.g., beveled, etc.]
- 428/24273 . . including aperture
- 428/24281 . . . Struck out portion type
- 428/24289 Embedded or interlocked
- 428/24298 . . . Noncircular aperture [e.g., slit, diamond, rectangular, etc.]
- 428/24306 Diamond or hexagonal
- 428/24314 Slit or elongate
- 428/24322 . . . Composite web or sheet
- 428/24331 including nonapertured component
- 428/24339 Keyed
- 428/24347 From both sides
- 428/24355 . . Continuous and nonuniform or irregular surface on layer or component [e.g., roofing, etc.]
- 428/24364 . . . with transparent or protective coating
- 428/24372 . . . Particulate matter
- 428/2438 Coated
- 428/24388 Silicon containing coating
- 428/24397 Carbohydrate
- 428/24405 Polymer or resin [e.g., natural or synthetic rubber, etc.]
- 428/24413 Metal or metal compound
- 428/24421 Silicon containing
- 428/2443 Sand, clay, or crushed rock or slate
- 428/24438 . . . Artificial wood or leather grain surface
- 428/24446 . . . Wrinkled, creased, crinkled or creped
- 428/24455 Paper
- 428/24463 Plural paper components
- 428/24471 . . . Crackled, crazed or slit
- 428/24479 . . including variation in thickness
- 428/24488 . . . Differential nonuniformity at margin
- 428/24496 . . . Foamed or cellular component
- 428/24504 Component comprises a polymer [e.g., rubber, etc.]
- 428/24512 Polyurethane
- 428/24521 . . . with component conforming to contour of nonplanar surface
- 428/24529 and conforming component on an opposite nonplanar surface
- 428/24537 Parallel ribs and/or grooves
- 428/24545 Containing metal or metal compound
- 428/24554 including cellulosic or natural rubber component
- 428/24562 . . . Interlaminar spaces
- 428/2457 . . . Parallel ribs and/or grooves
- 428/24579 with particulate matter
- 428/24587 Oblique to longitudinal axis of web or sheet
- 428/24595 . . . and varying density
- 428/24603 Fiber containing component
- 428/24612 . . . Composite web or sheet
- 428/2462 with partial filling of valleys on outer surface
- 428/24628 . . Nonplanar uniform thickness material
- 428/24636 . . . Embodying mechanically interengaged strand[s], strand-portion[s] or strand-like strip[s] [e.g., weave, knit, etc.]
- 428/24645 with folds in parallel planes
- 428/24653 . . . Differential nonplanarity at margin
- 428/24661 . . . Forming, or cooperating to form cells

- 428/24669 . . . Aligned or parallel nonplanarities
- 428/24678 Waffle-form
- 428/24686 Pleats or otherwise parallel adjacent folds
- 428/24694 Parallel corrugations
- 428/24702 with locally deformed crests or intersecting series of corrugations
- 428/24711 Plural corrugated components
- 428/24719 with corrugations of respective components intersecting in plane projection
- 428/24727 with planar component
- 428/24736 . . . Ornamental design or indicia
- 428/24744 . . Longitudinal or transverse tubular cavity or cell
- 428/24752 . . Laterally noncoextensive components
- 428/2476 . . . Fabric, cloth or textile component
- 428/24769 . . . Cellulosic
- 428/24777 . . Edge feature
- 428/24785 . . . including layer embodying mechanically interengaged strands, strand portions or strand-like strips [e.g., weave, knit, etc.]
- 428/24793 . . . Comprising discontinuous or differential impregnation or bond
- 428/24802 . . Discontinuous or differential coating, impregnation or bond [e.g., artwork, printing, retouched photograph, etc.]
- 428/2481 . . . including layer of mechanically interengaged strands, strand-portions or strand-like strips
- 428/24818 Knitted, with particular or differential bond sites or intersections
- 428/24826 . . . Spot bonds connect components
- 428/24835 . . . including developable image or soluble portion in coating or impregnation [e.g., safety paper, etc.]
- 428/24843 . . . with heat sealable or heat releasable adhesive layer
- 428/24851 . . . Intermediate layer is discontinuous or differential
- 428/2486 with outer strippable or release layer
- 428/24868 Translucent outer layer
- 428/24876 Intermediate layer contains particulate material [e.g., pigment, etc.]
- 428/24884 Translucent layer comprises natural oil, wax, resin, gum, glue, gelatin
- 428/24893 . . . including particulate material
- 428/24901 including coloring matter
- 428/24909 Free metal or mineral containing
- 428/24917 . . . including metal layer
- 428/24926 . . . including ceramic, glass, porcelain or quartz layer
- 428/24934 . . . including paper layer
- 428/24942 . . including components having same physical characteristic in differing degree
- 428/2495 . . . Thickness [relative or absolute]
- 428/24959 of adhesive layers
- 428/24967 Absolute thicknesses specified
- 428/24975 No layer or component greater than 5 mils thick
- 428/24983 . . . Hardness
- 428/24992 . . . Density or compression of components
- 428/249921 . Web or sheet containing structurally defined element or component
- 428/249922 . . Embodying intertwined or helical component[s]
- 428/249923 . . Including interlaminar mechanical fastener
- 428/249924 . . Noninterengaged fiber-containing paper-free web or sheet which is not of specified porosity
- 428/249925 . . . Fiber-containing wood product [e.g., hardboard, lumber, or wood board, etc.]
- 428/249926 . . . Including paper layer
- 428/249927 . . . Fiber embedded in a metal matrix
- 428/249928 . . . Fiber embedded in a ceramic, glass, or carbon matrix
- 428/249929 Fibers are aligned substantially parallel
- 428/24993 Fiber is precoated
- 428/249931 Free metal or alloy fiber
- 428/249932 . . . Fiber embedded in a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- 428/249933 . . . Fiber embedded in or on the surface of a natural or synthetic rubber matrix
- 428/249934 Fibers are aligned substantially parallel
- 428/249935 Fiber is nonlinear [e.g., crimped, sinusoidal, etc.]
- 428/249936 Fiber is precoated
- 428/249937 Fiber is precoated
- 428/249938 Composite or conjugate fiber [e.g., fiber contains more than one chemically different material in monofilament or multifilament form, etc.]
- 428/249939 Two or more layers
- 428/24994 . . . Fiber embedded in or on the surface of a polymeric matrix
- 428/249941 Fiber is on the surface of a polymeric matrix having no embedded portion
- 428/249942 Fibers are aligned substantially parallel
- 428/249943 Fiber is nonlinear [e.g., crimped, sinusoidal, etc.]
- 428/249944 Fiber is precoated
- 428/249945 Carbon or carbonaceous fiber
- 428/249946 Glass fiber
- 428/249947 Polymeric fiber
- 428/249948 Fiber is precoated
- 428/249949 Two or more chemically different fibers
- 428/24995 Two or more layers
- 428/249951 Including a free metal or alloy constituent
- 428/249952 At least one thermosetting synthetic polymeric material layer
- 428/249953 . . Composite having voids in a component [e.g., porous, cellular, etc.]
- 428/249954 . . . With chemically effective material or specified gas other than air, N, or carbon dioxide in void-containing component
- 428/249955 . . . Void-containing component partially impregnated with adjacent component
- 428/249956 Void-containing component is inorganic
- 428/249957 Inorganic impregnant
- 428/249958 Void-containing component is synthetic resin or natural rubbers
- 428/249959 Void-containing component is wood or paper
- 428/24996 . . . With internal element bridging layers, nonplanar interface between layers, or intermediate layer of commingled adjacent foam layers
- 428/249961 . . . With gradual property change within a component
- 428/249962 . . . Void-containing component has a continuous matrix of fibers only [e.g., porous paper, etc.]

- 428/249963 And a force disintegratable component [e.g., stencil sheet, etc.]
- 428/249964 Fibers of defined composition
- 428/249965 Cellulosic
- 428/249966 Plural cellulosic components
- 428/249967 . . . Inorganic matrix in void-containing component
- 428/249968 Of hydraulic-setting material
- 428/249969 Of silicon-containing material [e.g., glass, etc.]
- 428/24997 Of metal-containing material
- 428/249971 . . . Preformed hollow element-containing
- 428/249972 Resin or rubber element
- 428/249973 Mineral element
- 428/249974 Metal- or silicon-containing element
- 428/249975 . . . Void shape specified [e.g., crushed, flat, round, etc.]
- 428/249976 . . . Voids specified as closed
- 428/249977 Specified thickness of void-containing component [absolute or relative], numerical cell dimension or density
- 428/249978 . . . Voids specified as micro
- 428/249979 Specified thickness of void-containing component [absolute or relative] or numerical cell dimension
- 428/24998 Composite has more than two layers
- 428/249981 . . . Plural void-containing components
- 428/249982 . . . With component specified as adhesive or bonding agent
- 428/249983 As outermost component
- 428/249984 Adhesive or bonding component contains voids
- 428/249985 Composition of adhesive or bonding component specified
- 428/249986 . . . Void-containing component contains also a solid fiber or solid particle
- 428/249987 . . . With nonvoid component of specified composition
- 428/249988 Of about the same composition as, and adjacent to, the void-containing component
- 428/249989 Integrally formed skin
- 428/24999 Inorganic
- 428/249991 Synthetic resin or natural rubbers
- 428/249992 Linear or thermoplastic
- 428/249993 Hydrocarbon polymer
- 428/249994 . . Composite having a component wherein a constituent is liquid or is contained within preformed walls [e.g., impregnant-filled, previously void containing component, etc.]
- 428/249995 . . . Constituent is in liquid form
- 428/249996 Ink in pores
- 428/249997 Encapsulated liquid
- 428/249998 . . . Indefinite plurality of similar impregnated thin sheets [e.g., "decorative laminate" type, etc.]
- 428/249999 . . . Differentially filled foam, filled plural layers, or filled layer with coat of filling material
- 428/25 . . Web or sheet containing structurally defined element or component and including a second component containing structurally defined particles
- 428/251 . . Mica
- 428/252 . . Glass or ceramic [i.e., fired or glazed clay, cement, etc.] [porcelain, quartz, etc.]
- 428/253 . . Cellulosic [e.g., wood, paper, cork, rayon, etc.]
- 428/254 . . Polymeric or resinous material
- 428/256 . . Heavy metal or aluminum or compound thereof
- 428/257 . . . Iron oxide or aluminum oxide
- 428/258 . . Alkali metal or alkaline earth metal or compound thereof
- 428/259 . . Silicic material
- 428/26 . . Web or sheet containing structurally defined element or component, the element or component having a specified physical dimension
- 428/261 . . In terms of molecular thickness or light wave length
- 428/263 . . Coating layer not in excess of 5 mils thick or equivalent
- 428/264 . . . Up to 3 mils
- 428/265 1 mil or less
- 428/266 . . of base or substrate
- 428/268 . . Monolayer with structurally defined element
- 428/269 . . including synthetic resin or polymer layer or component
- 428/27 . . Web or sheet containing structurally defined element or component, the element or component having a specified weight per unit area [e.g., gms/sq cm, lbs/sq ft, etc.]
- 428/273 . . of coating
- 428/277 . . . Cellulosic substrate
- 428/28 . . Web or sheet containing structurally defined element or component and having an adhesive outermost layer
- 428/2804 . . Next to metal
- 428/2809 . . including irradiated or wave energy treated component
- 428/2813 . . Heat or solvent activated or sealable
- 428/2817 . . . Heat sealable
- 428/2822 Wax containing
- 428/2826 Synthetic resin or polymer
- 428/283 . . . Water activated
- 428/2835 . . including moisture or waterproof component
- 428/2839 . . with release or antistick coating
- 428/2843 . . including a primer layer
- 428/2848 . . Three or more layers
- 428/2852 . . Adhesive compositions
- 428/2857 . . . including metal or compound thereof or natural rubber
- 428/2861 . . . having readily strippable combined with readily readhearable properties [e.g., stick-ons, etc.]
- 428/2865 . . . including monomer or polymer of carbohydrate [e.g., starch, dextrin, etc.] Or protein [e.g., casein, animal protein, etc.] Or derivative thereof
- 428/287 . . . including epoxy group or epoxy polymer
- 428/2874 . . . including aldehyde or ketone condensation polymer [e.g., urea formaldehyde polymer, melamine formaldehyde polymer, etc.]
- 428/2878 . . . including addition polymer from unsaturated monomer
- 428/2883 including addition polymer of diene monomer [e.g., SBR, SIS, etc.]
- 428/2887 including nitrogen containing polymer [e.g., polyacrylonitrile, polymethacrylonitrile, etc.]
- 428/2891 including addition polymer from alpha-beta unsaturated carboxylic acid [e.g., acrylic acid, methacrylic acid, etc.] Or derivative thereof

- 428/2896 . . . including nitrogen containing condensation polymer [e.g., polyurethane, polyisocyanate, etc.]
- 428/29 . Coated or structurally defined flake, particle, cell, strand, strand portion, rod, filament, macroscopic fiber or mass thereof
- 428/2902 . . Channel shape
- 428/2904 . . Staple length fiber
- 428/2905 . . . Plural and with bonded intersections only
- 428/2907 . . . with coating or impregnation
- 428/2909 . . . Nonlinear [e.g., crimped, coiled, etc.]
- 428/2911 . . Mica flake
- 428/2913 . . Rod, strand, filament or fiber
- 428/2915 . . . including textile, cloth or fabric
- 428/2916 . . . including boron or compound thereof [not as steel]
- 428/2918 . . . including free carbon or carbide or therewith [not as steel]
- 428/292 In coating or impregnation
- 428/2922 . . . Nonlinear [e.g., crimped, coiled, etc.]
- 428/2924 Composite
- 428/2925 Helical or coiled
- 428/2927 . . . including structurally defined particulate matter
- 428/2929 . . . Bicomponent, conjugate, composite or collateral fibers or filaments [i.e., coextruded sheath-core or side-by-side type]
- 428/2931 Fibers or filaments nonconcentric [e.g., side-by-side or eccentric, etc.]
- 428/2933 . . . Coated or with bond, impregnation or core
- 428/2935 Discontinuous or tubular or cellular core
- 428/2936 Wound or wrapped core or coating [i.e., spiral or helical]
- 428/2938 Coating on discrete and individual rods, strands or filaments
- 428/294 including metal or compound thereof [excluding glass, ceramic and asbestos]
- 428/2942 Plural coatings
- 428/2944 Free metal in coating
- 428/2945 Natural rubber in coating
- 428/2947 Synthetic resin or polymer in plural coatings, each of different type
- 428/2949 Glass, ceramic or metal oxide in coating
- 428/2951 Metal with weld modifying or stabilizing coating [e.g., flux, slag, producer, etc.]
- 428/2953 Titanium compound in coating
- 428/2955 Silicic material in coating
- 428/2956 Glass or silicic fiber or filament with metal coating
- 428/2958 Metal or metal compound in coating
- 428/296 Rubber, cellulosic or silicic material in coating
- 428/2962 Silane, silicone or siloxane in coating
- 428/2964 Artificial fiber or filament
- 428/2965 Cellulosic
- 428/2967 Synthetic resin or polymer
- 428/2969 Polyamide, polyimide or polyester
- 428/2971 Impregnation
- 428/2973 . . . Particular cross section
- 428/2975 Tubular or cellular
- 428/2976 Longitudinally varying
- 428/2978 Surface characteristic
- 428/298 . . . Physical dimension
- 428/2982 . . Particulate matter [e.g., sphere, flake, etc.]
- 428/2984 . . . Microcapsule with fluid core [includes liposome]
- 428/2985 Solid-walled microcapsule from synthetic polymer
- 428/2987 Addition polymer from unsaturated monomers only
- 428/2989 . . . Microcapsule with solid core [includes liposome]
- 428/2991 . . . Coated
- 428/2993 Silicic or refractory material containing [e.g., tungsten oxide, glass, cement, etc.]
- 428/2995 Silane, siloxane or silicone coating
- 428/2996 Glass particles or spheres
- 428/2998 including synthetic resin or polymer
- 428/30 . Self-sustaining carbon mass or layer with impregnant or other layer
- 428/31 . Surface property or characteristic of web, sheet or block
- 428/315 . . Surface modified glass [e.g., tempered, strengthened, etc.]
- 428/31504 . Composite [nonstructural laminate]
- 428/31507 . . Of polycarbonate
- 428/31511 . . Of epoxy ether
- 428/31515 . . . As intermediate layer
- 428/31518 Next to glass or quartz
- 428/31522 Next to metal
- 428/31525 . . . Next to glass or quartz
- 428/31529 . . . Next to metal
- 428/31533 . . Of polythioether
- 428/31536 . . Including interfacial reaction product of adjacent layers
- 428/3154 . . Of fluorinated addition polymer from unsaturated monomers
- 428/31544 . . . Addition polymer is perhalogenated
- 428/31547 . . Of polyisocyanurate
- 428/31551 . . Of polyamidoester [polyurethane, polyisocyanate, polycarbamate, etc.]
- 428/31554 . . . Next to second layer of polyamidoester
- 428/31558 . . . Next to animal skin or membrane
- 428/31562 . . . Next to polyamide [nylon, etc.]
- 428/31565 . . . Next to polyester [polyethylene terephthalate, etc.]
- 428/31569 . . . Next to natural rubber
- 428/31573 . . . Next to addition polymer of ethylenically unsaturated monomer
- 428/31576 Ester monomer type [polyvinylacetate, etc.]
- 428/3158 Halide monomer type [polyvinyl chloride, etc.]
- 428/31583 Nitrile monomer type [polyacrylonitrile, etc.]
- 428/31587 Hydrocarbon polymer [polyethylene, polybutadiene, etc.]
- 428/31591 . . . Next to cellulosic
- 428/31594 . . . Next to aldehyde or ketone condensation product [phenol-aldehyde, etc.]
- 428/31598 . . . Next to silicon-containing [silicone, cement, etc.] layer
- 428/31601 Quartz or glass
- 428/31605 . . . Next to free metal
- 428/31609 . . . Particulate metal or metal compound-containing
- 428/31612 As silicone, silane or siloxane
- 428/31616 . . . Next to polyester [e.g., alkyd]

428/3162	Cross-linked polyester [e.g., glycerol maleate-styrene, etc.]	428/31768	Natural source-type polyamide [e.g., casein, gelatin, etc.]
428/31623	Next to polyamide or polyimide	428/31772	Next to cellulosic
428/31627	Next to aldehyde or ketone condensation product	428/31775	Paper
428/3163	Next to acetal of polymerized unsaturated alcohol [e.g., formal butyral, etc.]	428/31779	Next to cellulosic
428/31634	Next to cellulosic	428/31783	Paper or wood
428/31638	Cellulosic ester	428/31786	Of polyester [e.g., alkyd, etc.]
428/31641	Next to natural rubber, gum, oil, rosin, wax, bituminous or tarry residue	428/3179	Next to cellulosic
428/31645	Next to addition polymer from unsaturated monomers	428/31794	Of cross-linked polyester
428/31649	Ester, halide or nitrile of addition polymer	428/31797	Next to addition polymer from unsaturated monomers
428/31652	Of asbestos	428/31801	Of wax or waxy material
428/31656	With metal layer	428/31804	Next to cellulosic
428/31659	With cellulosic layer	428/31808	Cellulosic is paper
428/31663	As siloxane, silicone or silane	428/31812	Glassine paper
428/31667	Next to addition polymer from unsaturated monomers, or aldehyde or ketone condensation product	428/31815	Of bituminous or tarry residue
428/3167	Of cork	428/31819	Next to cellulosic
428/31674	Including natural oil or gum or rosin [e.g., linoleum, etc.]	428/31823	Paper
428/31678	Of metal	428/31826	Of natural rubber
428/31681	Next to polyester, polyamide or polyimide [e.g., alkyd, glue, or nylon, etc.]	428/3183	Next to second layer of natural rubber
428/31685	Natural source polyamide [e.g., casein, gelatin, etc.]	428/31833	Next to aldehyde or ketone condensation product or addition polymer from unsaturated monomers
428/31688	Next to aldehyde or ketone condensation product	428/31837	Including polyene monomers
428/31692	Next to addition polymer from unsaturated monomers	428/31841	Next to cellulosic
428/31696	Including polyene monomers [e.g., butadiene, etc.]	428/31844	Of natural gum, rosin, natural oil or lac
428/31699	Ester, halide or nitrile of addition polymer	428/31848	Next to cellulosic
428/31703	Next to cellulosic	428/31851	Natural oil
428/31707	Next to natural rubber	428/31855	Of addition polymer from unsaturated monomers
428/3171	With natural rubber next to second layer of natural rubber	428/31859	Next to an aldehyde or ketone condensation product
428/31714	Next to natural gum, natural oil, rosin, lac or wax	428/31862	Melamine-aldehyde
428/31717	Next to bituminous or tarry residue	428/31866	Impregnated or coated cellulosic material
428/31721	Of polyimide	428/3187	Amide-aldehyde
428/31725	Of polyamide	428/31873	Urea or modified urea-aldehyde
428/31728	Next to second layer of polyamide	428/31877	Phenol-aldehyde
428/31732	At least one layer is nylon type	428/3188	Next to cellulosic
428/31736	Next to polyester	428/31884	Regenerated or modified cellulose
428/31739	Nylon type	428/31888	Addition polymer of hydrocarbon[s] only
428/31743	Next to addition polymer from unsaturated monomer[s]	428/31891	Where addition polymer is an ester or halide
428/31746	Polymer of monoethylenically unsaturated hydrocarbon	428/31895	Paper or wood
428/3175	Next to addition polymer from unsaturated monomer[s]	428/31899	Addition polymer of hydrocarbon[s] only
428/31754	Natural source-type polyamide	428/31902	Monoethylenically unsaturated
428/31757	Polymer of monoethylenically unsaturated hydrocarbon	428/31906	Ester, halide or nitrile of addition polymer
428/31761	Next to aldehyde or ketone condensation product	428/31909	Next to second addition polymer from unsaturated monomers
428/31765	Inorganic-containing or next to inorganic-containing	428/31913	Monoolefin polymer
		428/31917	Next to polyene polymer
		428/3192	Next to vinyl or vinylidene chloride polymer
		428/31924	Including polyene monomers
		428/31928	Ester, halide or nitrile of addition polymer
		428/31931	Polyene monomer-containing
		428/31935	Ester, halide or nitrile of addition polymer
		428/31938	Polymer of monoethylenically unsaturated hydrocarbon
		428/31942	Of aldehyde or ketone condensation product
		428/31946	Next to second aldehyde or ketone condensation product
		428/31949	Next to cellulosic
		428/31953	Modified or regenerated cellulose

- 428/31957 Wood
- 428/3196 Phenoplast
- 428/31964 Paper
- 428/31967 Phenoplast
- 428/31971 Of carbohydrate
- 428/31975 Of cellulosic next to another carbohydrate
- 428/31978 Cellulosic next to another cellulosic
- 428/31982 Wood or paper
- 428/31986 Regenerated or modified
- 428/31989 Of wood
- 428/31993 Of paper
- 428/31996 Next to layer of metal salt [e.g., plasterboard, etc.]
- 428/32 Composite [nonstructural laminate] of inorganic material having metal-compound-containing layer and having defined magnetic layer
- 428/325 Magnetic layer next to second metal compound-containing layer
- 428/4935 Impregnated naturally solid product [e.g., leather, stone, etc.]
- 428/662 Wood timber product [e.g., piling, post, veneer, etc.]
- 428/8305 Miscellaneous [e.g., treated surfaces, etc.]

Former US Class 436 Series**436/00 Chemistry: analytical and immunological testing**

- 436/10 Composition for standardization, calibration, simulation, stabilization, preparation or preservation; processes of use in preparation for chemical testing
- 436/100833 Simulative of a gaseous composition
- 436/101666 Particle count or volume standard or control [e.g., platelet count standards, etc.]
- 436/102499 Blood gas standard or control
- 436/103332 Bilirubin or uric acid standard or control
- 436/104165 Lipid, cholesterol, or triglyceride standard or control
- 436/104998 Glucose, ketone, nitrate standard or control
- 436/105831 Protein or peptide standard or control [e.g., hemoglobin, etc.]
- 436/106664 Blood serum or blood plasma standard or control
- 436/107497 Preparation composition [e.g., lysing or precipitation, etc.]
- 436/108331 Preservative, buffer, anticoagulant or diluent
- 436/109163 Inorganic standards or controls
- 436/11 Automated chemical analysis
- 436/110833 Utilizing a moving indicator strip or tape
- 436/111666 Utilizing a centrifuge or compartmented rotor
- 436/112499 with sample on test slide
- 436/113332 with conveyance of sample along a test line in a container or rack
- 436/114165 with step of insertion or removal from test line
- 436/114998 with treatment or replacement of aspirator element [e.g., cleaning, etc.]
- 436/115831 Condition or time responsive
- 436/116664 with automated titrator
- 436/117497 with a continuously flowing sample or carrier stream
- 436/118339 with formation of a segmented stream
- 436/119163 with aspirator of claimed structure
- 436/12 Condition responsive control
- 436/13 Tracers or tags

- 436/14 Heterocyclic carbon compound [i.e., O, S, N, Se, Te, as only ring hetero atom]
- 436/141111 Diverse hetero atoms in same or different rings [e.g., alkaloids, opiates, etc.]
- 436/142222 Hetero-O [e.g., ascorbic acid, etc.]
- 436/143333 Saccharide [e.g., DNA, etc.]
- 436/144444 Glucose
- 436/145555 Hetero-N
- 436/146666 Bile pigment
- 436/147777 Plural nitrogen in the same ring [e.g., barbituates, creatinine, etc.]
- 436/148888 Uric acid
- 436/15 Inorganic acid or base [e.g., hcl, sulfuric acid, etc.]
- 436/153333 Halogen containing
- 436/156666 Sulfur containing
- 436/16 Phosphorus containing
- 436/163333 Organic [e.g., chemical warfare agents, insecticides, etc.]
- 436/166666 of inorganic phosphorus compound in body fluid
- 436/17 Nitrogen containing
- 436/170769 N-Nitroso containing [e.g., nitrosamine, etc.]
- 436/171538 Urea or blood urea nitrogen
- 436/172307 Cyanide or isocyanide
- 436/173076 Nitrite or nitrate
- 436/173845 Amine and quaternary ammonium
- 436/174614 Tertiary amine
- 436/175383 Ammonia
- 436/176152 Total nitrogen determined
- 436/176921 As part of an elemental analysis
- 436/177692 Oxides of nitrogen
- 436/178459 Only nitrogen dioxide
- 436/179228 Both nitrogen oxide and dioxide
- 436/18 Sulfur containing
- 436/182 Organic or sulfhydryl containing [e.g., mercaptan, hydrogen, sulfide, etc.]
- 436/184 Only hydrogen sulfide
- 436/186 Sulfur dioxide
- 436/188 Total or elemental sulfur
- 436/19 Halogen containing
- 436/193333 In aqueous solution
- 436/196666 Carbon containing compound [e.g., vinylchloride, etc.]
- 436/20 Oxygen containing
- 436/200833 Carbonyl, ether, aldehyde or ketone containing
- 436/201666 Carboxylic acid
- 436/202499 Formaldehyde or acetone
- 436/203332 Hydroxyl containing
- 436/204165 Ethanol
- 436/204998 Inorganic carbon compounds
- 436/205831 Carbon monoxide only
- 436/206664 Ozone or peroxide
- 436/207497 Molecular oxygen
- 436/208339 Fuel/air mixture or exhaust gas analysis
- 436/209163 Dissolved or trace oxygen or oxygen content of a sealed environment
- 436/21 Hydrocarbon
- 436/212 Aromatic
- 436/214 Acyclic [e.g., methane, octane, isoparaffin, etc.]
- 436/216 Unsaturated [e.g., ethylene, diene, etc.]
- 436/218 Total hydrocarbon, flammability, combustibility [e.g., air-fuel mixture, etc.]
- 436/22 Hydrogen, per se

- 436/23 . Carbon containing
- 436/235 . . In an aqueous solution [e.g., TOC, etc.]
- 436/24 . Nuclear magnetic resonance, electron spin resonance or other spin effects or mass spectrometry
- 436/25 . including sample preparation
- 436/25125 . . Digestion or removing interfering materials
- 436/2525 . . Stabilizing or preserving
- 436/25375 . . Liberation or purification of sample or separation of material from a sample [e.g., filtering, centrifuging, etc.]
- 436/255 . . . including use of a solid sorbent, semipermeable membrane, or liquid extraction
- 436/25625 . . Dilution
- 436/2575 . . Volumetric liquid transfer
- 436/25875 . . Gaseous sample or with change of physical state

Former US Class 442 series

- 442/00 Fabric [woven, knitted, or nonwoven textile or cloth, etc.]**
- 442/10 . Scrim [e.g., open net or mesh, gauze, loose or open weave or knit, etc.]
- 442/102 . . Woven scrim
- 442/103 . . . Including a multifilament fiber precoated with other than free metal or alloy prior to weaving
- 442/105 . . . Comprising a composite fiber
- 442/107 . . . Comprising at least two chemically different fibers
- 442/109 . . . Metal or metal-coated fiber-containing scrim
- 442/11 Including an additional free metal or alloy constituent
- 442/112 Particulate free metal or alloy constituent
- 442/114 Including a foam layer
- 442/116 Including a woven fabric which is not a scrim
- 442/117 Including a nonwoven fabric which is not a scrim
- 442/119 Including a paper layer
- 442/121 Including a nonwoven fabric which is not a scrim
- 442/122 Two or more nonwoven fabric layers
- 442/124 Including a natural or synthetic rubber layer
- 442/126 Including a preformed film, foil, or sheet
- 442/128 Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- 442/129 Including a ceramic or glass layer
- 442/131 Including a coating or impregnation of synthetic polymeric material
- 442/133 . . . Inorganic fiber-containing scrim
- 442/134 Including a carbon or carbonized fiber
- 442/136 Including a foam layer
- 442/138 Including a metal layer
- 442/14 Including an additional scrim layer
- 442/141 Including a woven fabric which is not a scrim
- 442/143 Including a nonwoven fabric which is not a scrim
- 442/145 Including a preformed film, foil, or sheet
- 442/147 Including a mica layer
- 442/148 Including a coating or impregnation containing particulate material other than fiber
- 442/15 . . . Including a foam layer
- 442/152 . . . Including a free metal or alloy constituent
- 442/153 . . . Including an additional scrim layer
- 442/155 . . . Including a paper layer
- 442/157 Two or more paper layers
- 442/159 . . . Including a nonwoven fabric which is not a scrim
- 442/16 Two or more nonwoven layers
- 442/162 . . . Including a natural or synthetic rubber layer
- 442/164 . . . Including a preformed film, foil, or sheet
- 442/166 Cellulose acetate film or sheet
- 442/167 Fluorinated polyolefin film or sheet
- 442/169 Polyolefin film or sheet
- 442/171 . . . Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- 442/172 . . . Coated or impregnated
- 442/174 Including particulate material other than fiber in coating or impregnation
- 442/176 Three or more layers
- 442/178 Synthetic polymeric fiber
- 442/179 Nylon fiber
- 442/181 Bitumen coating or impregnation
- 442/183 . . . Synthetic polymeric fiber
- 442/184 . . Nonwoven scrim
- 442/186 . . . Comprising a composite fiber
- 442/188 . . . Metal or metal-coated fiber-containing scrim
- 442/19 Including a paper layer
- 442/191 . . . Inorganic fiber-containing scrim
- 442/193 Including a foam layer
- 442/195 . . . Including a foam layer
- 442/197 . . . Including a nonwoven fabric which is not a scrim
- 442/198 . . . Coated or impregnated
- 442/20 . Coated or impregnated woven, knit, or nonwoven fabric which is not [a] associated with another preformed layer or fiber layer or, [b] with respect to woven and knit, characterized, respectively, by a particular or differential weave or knit, wherein the coating or impregnation is neither a foamed material nor a free metal or alloy layer
- 442/2008 . . Fabric composed of a fiber or strand which is of specific structural definition
- 442/2016 . . Impregnation is confined to a plane disposed between both major fabric surfaces which are essentially free of impregnating material
- 442/2025 . . Coating produced by extrusion
- 442/2033 . . Coating or impregnation formed *in situ* [e.g., by interfacial condensation, coagulation, precipitation, etc.]
- 442/2041 . . Two or more non-extruded coatings or impregnations
- 442/2049 . . . Each major face of the fabric has at least one coating or impregnation
- 442/2057 At least two coatings or impregnations of different chemical composition
- 442/2066 Different coatings or impregnations on opposite faces of the fabric
- 442/2074 At least one coating or impregnation contains particulate material
- 442/2082 At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- 442/209 At least one coating or impregnation contains particulate material

- 442/2098 . . . At least two coatings or impregnations of different chemical composition
- 442/2107 At least one coating or impregnation contains particulate material
- 442/2115 At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- 442/2123 . . . At least one coating or impregnation contains particulate material
- 442/2131 At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- 442/2139 . . Coating or impregnation specified as porous or permeable to a specific substance [e.g., water vapor, air, etc.]
- 442/2148 . . . Coating or impregnation is specified as microporous but is not a foam
- 442/2156 . . Coating or impregnation collects radionuclide or heavy metal
- 442/2164 . . Coating or impregnation specified as water repellent
- 442/2172 . . . Also specified as oil repellent
- 442/218 . . . Organosilicon containing
- 442/2189 . . . Fluorocarbon containing
- 442/2197 . . . Nitrogen containing
- 442/2205 . . . Natural oil or wax containing
- 442/2213 . . Coating or impregnation is specified as weather proof, water vapor resistant, or moisture resistant
- 442/2221 . . Coating or impregnation is specified as water proof
- 442/223 . . . Organosilicon containing
- 442/2238 . . . Fluorocarbon containing
- 442/2246 . . . Nitrogen containing
- 442/2254 . . . Natural oil or wax containing
- 442/2262 . . Coating or impregnation is oil repellent but not oil or stain release
- 442/227 . . . Fluorocarbon containing
- 442/2279 . . Coating or impregnation improves soil repellency, soil release, or anti- soil redeposition qualities of fabric
- 442/2287 . . . Fluorocarbon containing
- 442/2295 . . . Linear polyether group chain containing
- 442/2303 . . Coating or impregnation provides a fragrance or releases an odor intended to be perceptible to humans
- 442/2311 . . Coating or impregnation is a lubricant or a surface friction reducing agent other than specified as improving the "hand" of the fabric or increasing the softness thereof
- 442/232 . . . Fluorocarbon containing
- 442/2328 . . . Organosilicon containing
- 442/2336 . . . Natural oil or wax containing
- 442/2344 . . Coating or impregnation is anti-slip or friction-increasing other than specified as an abrasive
- 442/2352 . . Coating or impregnation functions to soften the feel of or improve the "hand" of the fabric
- 442/2361 . . Coating or impregnation improves stiffness of the fabric other than specified as a size
- 442/2369 . . Coating or impregnation improves elasticity, bendability, resiliency, flexibility, or shape retention of the fabric
- 442/2377 . . . Improves elasticity
- 442/2385 . . . Improves shrink resistance
- 442/2393 . . . Coating or impregnation provides crease-resistance or wash and wear characteristics
- 442/2402 . . Coating or impregnation specified as a size
- 442/241 . . Coating or impregnation improves snag or pull resistance of the fabric
- 442/2418 . . Coating or impregnation increases electrical conductivity or anti-static quality
- 442/2426 . . . Elemental carbon containing
- 442/2434 . . . Linear polyether group chain containing
- 442/2443 . . . Nitrogen and phosphorus containing
- 442/2451 . . . Phosphorus containing
- 442/2459 . . . Nitrogen containing
- 442/2467 . . . Sulphur containing
- 442/2475 . . Coating or impregnation is electrical insulation-providing, -improving, or -increasing, or conductivity-reducing
- 442/2484 . . Coating or impregnation is water absorbency-increasing or hydrophilicity-increasing or hydrophilicity-imparting
- 442/2492 . . . Polyether group containing
- 442/25 . . Coating or impregnation absorbs sound
- 442/2508 . . Coating or impregnation absorbs chemical material other than water
- 442/2516 . . . Chemical material is one used in biological or chemical warfare
- 442/2525 . . Coating or impregnation functions biologically [e.g., insect repellent, antiseptic, insecticide, bactericide, etc.]
- 442/2533 . . . Inhibits mildew
- 442/2541 . . . Insect repellent
- 442/2549 . . Coating or impregnation is chemically inert or of stated nonreactance
- 442/2557 . . . Oxygen or ozone resistant
- 442/2566 . . . Organic solvent resistant [e.g., dry cleaning fluid, etc.]
- 442/2574 . . . Acid or alkali resistant
- 442/2582 . . Coating or impregnation contains an optical bleach or brightener or functions as an optical bleach or brightener [e.g., it masks fabric yellowing, etc.]
- 442/259 . . Coating or impregnation provides protection from radiation [e.g., U.V., visible light, I.R., micscheme-change-itemave, high energy particle, etc.] or heat retention thru radiation absorption
- 442/2598 . . . Radiation reflective
- 442/2607 . . . Radiation absorptive
- 442/2615 . . Coating or impregnation is resistant to penetration by solid implements
- 442/2623 . . . Ballistic resistant
- 442/2631 . . Coating or impregnation provides heat or fire protection
- 442/2639 . . . Coated or impregnated asbestos fabric
- 442/2648 . . . Coating or impregnation is specified as an intumescent material
- 442/2656 . . . Antimony containing
- 442/2664 . . . Boron containing
- 442/2672 . . . Phosphorus containing
- 442/268 Phosphorus and nitrogen containing compound
- 442/2689 A phosphorus containing compound and a nitrogen containing compound
- 442/2697 Phosphorus and halogen containing compound

- 442/2705 A phosphorus containing compound and a halogen containing compound
- 442/2713 . . . Halogen containing
- 442/2721 . . . Nitrogen containing
- 442/273 . . Coating or impregnation provides wear or abrasion resistance
- 442/2738 . . Coating or impregnation intended to function as an adhesive to solid surfaces subsequently associated therewith
- 442/2746 . . . Heat-activatable adhesive
- 442/2754 . . . Pressure-sensitive adhesive
- 442/2762 . . Coated or impregnated natural fiber fabric [e.g., cotton, wool, silk, linen, etc.]
- 442/277 . . . Coated or impregnated cellulosic fiber fabric
- 442/2779 Coating or impregnation contains an acrylic polymer or copolymer [e.g., polyacrylonitrile, polyacrylic acid, etc.]
- 442/2787 Coating or impregnation contains a vinyl polymer or copolymer
- 442/2795 Coating or impregnation contains an epoxy polymer or copolymer or polyether
- 442/2803 Polymeric coating or impregnation from a silane or siloxane not specified as lubricant or water repellent
- 442/2811 Coating or impregnation contains polyimide or polyamide
- 442/282 Coating or impregnation contains natural gum, rosin, natural oil, or wax
- 442/2828 Coating or impregnation contains aldehyde or ketone condensation product
- 442/2836 Phenol-aldehyde condensate
- 442/2844 Melamine-aldehyde condensate
- 442/2852 Amide-aldehyde condensate [e.g., modified urea-aldehyde condensate, etc.]
- 442/2861 . . Coated or impregnated synthetic organic fiber fabric
- 442/2869 . . . Coated or impregnated regenerated cellulose fiber fabric
- 442/2877 . . . Coated or impregnated polyvinyl alcohol fiber fabric
- 442/2885 . . . Coated or impregnated acrylic fiber fabric
- 442/2893 . . . Coated or impregnated polyamide fiber fabric
- 442/2902 Aromatic polyamide fiber fabric
- 442/291 . . . Coated or impregnated polyolefin fiber fabric
- 442/2918 Polypropylene fiber fabric
- 442/2926 . . Coated or impregnated inorganic fiber fabric
- 442/2934 . . . Coating or impregnation contains vinyl polymer or copolymer
- 442/2943 Vinyl acetate polymer or copolymer
- 442/2951 . . . Coating or impregnation contains epoxy polymer or copolymer or polyether
- 442/2959 . . . Coating or impregnation contains aldehyde or ketone condensation product
- 442/2967 Amide-aldehyde condensate
- 442/2975 . . . Coated or impregnated ceramic fiber fabric
- 442/2984 . . . Coated or impregnated carbon or carbonaceous fiber fabric
- 442/2992 . . . Coated or impregnated glass fiber fabric
- 442/30 . . Woven fabric [i.e., woven strand or strip material]
- 442/3008 . . Woven fabric has an elastic quality
- 442/3016 . . . Including a preformed layer other than the elastic woven fabric [e.g., fabric or film or foil or sheet layer, etc.]
- 442/3024 . . . Including elastic strand or strip
- 442/3033 . . Including a strip or ribbon
- 442/3041 . . . Woven fabric comprises strips or ribbons only
- 442/3049 . . Including strand precoated with other than free metal or alloy
- 442/3057 . . . Multiple coatings
- 442/3065 . . Including strand which is of specific structural definition
- 442/3073 . . . Strand material is core-spun [not sheath-core bicomponent strand]
- 442/3081 Core is synthetic polymeric material
- 442/3089 . . . Cross-sectional configuration of strand material is specified
- 442/3098 Cross-sectional configuration varies longitudinally along the strand
- 442/3106 Hollow strand material
- 442/3114 Cross-sectional configuration of the strand material is other than circular
- 442/3122 Cross-sectional configuration is multi-lobal
- 442/313 . . . Strand material formed of individual filaments having different chemical compositions
- 442/3138 Including inorganic filament
- 442/3146 . . Strand material is composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material
- 442/3154 . . . Sheath-core multicomponent strand material
- 442/3163 . . . Islands-in-sea multicomponent strand material
- 442/3171 . . . Strand material is a blend of polymeric material and a filler material
- 442/3179 . . Woven fabric is characterized by a particular or differential weave other than fabric in which the strand denier or warp/weft pick count is specified
- 442/3187 . . . Triaxially woven fabric
- 442/3195 . . . Three-dimensional weave [e.g., x-y-z planes, multi-planar warps and/or wefts, etc.]
- 442/3203 Multi-planar warp layers
- 442/3211 Multi-planar weft layers
- 442/322 . . . Warp differs from weft
- 442/3228 Materials differ
- 442/3236 Including inorganic strand material
- 442/3244 Including natural strand material [e.g., cotton, wool, etc.]
- 442/3252 Including synthetic polymeric strand material
- 442/326 Including synthetic polymeric strand material
- 442/3268 Including natural strand material
- 442/3276 Including polyamide strand material
- 442/3285 Including polyester strand material
- 442/3293 . . . Warp and weft are identical and contain at least two chemically different strand materials
- 442/3301 . . . Coated, impregnated, or autogenous bonded
- 442/3309 Woven fabric contains inorganic strand material
- 442/3317 Woven fabric contains synthetic polymeric strand material
- 442/3325 . . Including a foamed layer or component
- 442/3333 . . . Including a free metal or alloy constituent

442/3341	. . . Plural foam layers	442/3667	. . . . Composite consisting of at least two woven fabrics bonded by an interposed adhesive layer [but not two woven fabrics bonded together by an impregnation which penetrates through the thickness of at least one of the woven fabric layers]
442/335	. . . Plural fabric layers	442/3675	. . . . . Fabric layer contains natural strand material
442/3358	. . . . Including a nonwoven fabric layer	442/3683	. . . . . Fabric layer contains carbon or carbonaceous strand material
442/3366	. . . Woven fabric is coated, impregnated, or autogenously bonded	442/3691	. . . . . Fabric layer contains glass strand material
442/3374	. . . . Coating or impregnation includes particulate material other than fiber	442/3699	. . . . . Including particulate material other than fiber
442/3382	. . Including a free metal or alloy constituent	442/3707	. . Woven fabric including a nonwoven fabric layer other than paper
442/339	. . . Metal or metal-coated strand	442/3715	. . . Nonwoven fabric layer comprises parallel arrays of strand material
442/3398	. . . Vapor or sputter deposited metal layer	442/3724	. . . Needled
442/3407	. . . Chemically deposited metal layer [e.g., chemical precipitation or electrochemical deposition or plating, etc.]	442/3732	. . . . Including an additional nonwoven fabric
442/3415	. . . Preformed metallic film or foil or sheet [film or foil or sheet had structural integrity prior to association with the woven fabric]	442/374	. . . . . Additional nonwoven fabric comprises chemically different strand material than the first nonwoven fabric
442/3423	. . . . Plural metallic films or foils or sheets	442/3748	. . . . . Including inorganic strand material
442/3431	. . . . Plural fabric layers	442/3756	. . . . Nonwoven fabric layer comprises at least two chemically different fibers
442/3439	. . . . . Including a nonwoven fabric layer	442/3764	. . . . Coated, impregnated, or autogenously bonded
442/3447	. . . . Including a preformed synthetic polymeric film or sheet [i.e., film or sheet having structural integrity prior to association with the woven fabric]	442/3772	. . . Hydroentangled
442/3455	. . . . Including particulate material other than fiber	442/378	. . . Coated, impregnated, or autogenously bonded
442/3463	. . . Plural fabric layers	442/3789	. . . . Plural nonwoven fabric layers
442/3472	. . Woven fabric including an additional woven fabric layer	442/3797	. . . . Coating or impregnation is derived from a water-settable material [e.g., cement, gypsum, etc.]
442/348	. . . Mechanically needled or hydroentangled	442/3805	. . . . Coating or impregnation contains natural or synthetic rubber
442/3488	. . . . Four or more layers	442/3813	. . . . Coating or impregnation contains synthetic polymeric material
442/3496	. . . . Coated, impregnated, or autogenously bonded	442/3821	. . . . Coating or impregnation contains bituminous material
442/3504	. . . Woven fabric layers comprise chemically different strand material	442/3829	. . . . Four or more layers
442/3512	. . . . Three or more fabric layers	442/3837	. . . . . Including particulate material other than fiber
442/352	. . . . . One of which is a nonwoven fabric layer	442/3846	. . . . Including particulate material other than fiber
442/3528	. . . Three or more fabric layers	442/3854	. . Woven fabric with a preformed polymeric film or sheet
442/3537	. . . . One of which is a nonwoven fabric layer	442/3862	. . . Ester condensation polymer sheet or film [e.g., polyethylene terephthalate, etc.]
442/3545	. . . . Woven fabric layers impregnated with a blend of thermosetting and thermoplastic resins	442/387	. . . Vinyl polymer or copolymer sheet or film [e.g., polyvinyl chloride, polyvinylidene chloride, polyvinyl acetate, etc.]
442/3553	. . . . Woven fabric layers impregnated with an organosilicon resin	442/3878	. . . Fluorinated olefin polymer or copolymer sheet or film [e.g., Teflon®, etc.]
442/3561	. . . . Woven fabric layers impregnated with a natural or synthetic rubber	442/3886	. . . Olefin polymer or copolymer sheet or film [e.g., polypropylene, polyethylene, ethylene-butylene copolymer, etc.]
442/3569	. . . . Woven fabric layers impregnated with a thermosetting resin	442/3894	. . . Amide condensation polymer sheet or film [e.g., nylon 6, etc.]
442/3577	. . . . . Phenolic resin	442/3902	. . . Polyimide sheet or film
442/3585	. . . . . Epoxy resin	442/3911	. . . Natural or synthetic rubber sheet or film
442/3594	. . . . Woven fabric layers impregnated with a thermoplastic resin [e.g., vinyl polymer, etc.]	442/3919	. . . Including particulate material other than fiber
442/3602	. . . Three or more distinct layers	442/3927	. . Including a paper or wood pulp layer
442/361	. . . . At least one layer is derived from water-settable material [e.g., cement, gypsum, etc.]	442/3935	. . . Mica paper layer
442/3618	. . . . At least one layer contains wood or cork	442/3943	. . . Plural paper or wood pulp layers
442/3626	. . . . At least one layer contains bituminous material [e.g., tar, pitch, asphalt, etc.]	442/3951	. . . Including a bituminous layer
442/3634	. . . . At least one layer comprises paper	442/3959	. . . Including an outermost adhesive layer
442/3642	. . . . At least one layer contains natural or synthetic rubber		
442/365	. . . . At least one layer is a preformed synthetic polymeric film or sheet		
442/3659	. . . . At least one layer comprises ceramic or glass material in other than particulate form		

442/3967	. . . Including a natural or synthetic rubber layer	442/611	. . . . Cross-sectional configuration of strand or fiber material is other than circular
442/3976	. . Including strand which is stated to have specific attributes [e.g., heat or fire resistance, chemical or solvent resistance, high absorption for aqueous composition, water solubility, heat shrinkability, etc.]	442/612	. . . . Hollow strand or fiber material
		442/613	. . . . Microcellular strand or fiber material
442/3984	. . . Strand is other than glass and is heat or fire resistant	442/614	. . . Strand or fiber material specified as having microdimensions [i.e., microfiber]
442/3992	. . . Strand is heat shrinkable	442/615	. . . . Strand or fiber material is blended with another chemically different microfiber in the same layer
442/40	. Knit fabric [i.e., knit strand or strip material]	442/616	. . . . Blend of synthetic polymeric and inorganic microfibers
442/406	. . Including parallel strips	442/618	. . . . Blend of chemically different inorganic microfibers
442/413	. . Including an elastic strand	442/619	. . . . Including other strand or fiber material in the same layer not specified as having microdimensions
442/419	. . Including strand precoated with other than free metal or alloy	442/62	. . . . Including another chemically different microfiber in a separate layer
442/425	. . Including strand which is of specific structural definition	442/621	. . . . Including other strand or fiber material in a different layer not specified as having microdimensions
442/431	. . . Cross-sectional configuration of strand material is specified	442/622	. . . . Microfiber is a composite fiber
442/438	. . . Strand material formed of individual filaments having different chemical compositions	442/623	. . . . Microfiber is glass
442/444	. . Strand is a monofilament composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material	442/624	. . . . Microfiber is carbon or carbonaceous
		442/625	. . . . Autogenously bonded
442/45	. . Knit fabric is characterized by a particular or differential knit pattern other than open knit fabric or a fabric in which the strand denier is specified	442/626	. . . . Microfiber is synthetic polymer
		442/627	. . . Strand or fiber material is specified as non-linear [e.g., crimped, coiled, etc.]
442/456	. . . Including additional strand inserted within knit fabric	442/629	. . . . Composite strand or fiber material
442/463	. . . . Warp knit insert strand	442/63	. . . . Carbon or carbonaceous strand or fiber material
442/469	. . Including a foamed layer or component	442/631	. . . . Glass strand or fiber material
442/475	. . Including a free metal or alloy constituent	442/632	. . . . A single nonwoven layer comprising non-linear synthetic polymeric strand or fiber material and strand or fiber material not specified as non-linear
442/481	. . . Chemically deposited metal layer [e.g., chemical precipitation or electrochemical deposition or plating, etc.]	442/633	. . . . Synthetic polymeric strand or fiber material is of staple length
442/488	. . Including an additional knit fabric layer	442/634	. . . . A nonwoven fabric having a layer comprising non-linear synthetic polymeric strand or fiber material and a separate and distinct layer comprising strand or fiber material which is not specified as non-linear
442/494	. . Including a nonwoven fabric layer other than paper	442/635	. . . . Synthetic polymeric strand or fiber material
442/50	. FELT FABRIC	442/636	. . . . Synthetic polymeric strand or fiber material is of staple length
442/51	. . From natural organic fiber [e.g., wool, etc.]	442/637	. . Including strand or fiber material which is a monofilament composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material
442/53	. . . Including particulate material other than fiber		
442/54	. . . At least three layers	442/638	. . . Side-by-side multicomponent strand or fiber material
442/56	. . From synthetic organic fiber	442/64	. . . Islands-in-sea multicomponent strand or fiber material
442/57	. . Including particulate material other than fiber	442/641	. . . Sheath-core multicomponent strand or fiber material
442/59	. . At least three layers	442/642	. . . Strand or fiber material is a blend of polymeric material and a filler material
442/60	. Nonwoven fabric [i.e., nonwoven strand or fiber material]	442/643	. . Including parallel strand or fiber material within the nonwoven fabric
442/601	. . Nonwoven fabric has an elastic quality		
442/602	. . . Nonwoven fabric comprises an elastic strand or fiber material		
442/603	. . Including strand or fiber material precoated with other than free metal or alloy		
442/604	. . . Strand or fiber material is glass		
442/605	. . . Strand or fiber material is inorganic		
442/607	. . . Strand or fiber material is synthetic polymer		
442/608	. . Including strand or fiber material which is of specific structural definition		
442/609	. . . Cross-sectional configuration of strand or fiber material is specified		
442/61	. . . . Cross-sectional configuration varies longitudinally along strand or fiber material		

- 442/644 . . . Parallel strand or fiber material is glass
- 442/645 . . . Parallel strand or fiber material is inorganic [e.g., rock wool, mineral wool, etc.]
- 442/646 . . . Parallel strand or fiber material is naturally occurring [e.g., cotton, wool, etc.]
- 442/647 . . Including a foamed layer or component
- 442/648 . . . Including a free metal or alloy constituent
- 442/649 . . . Plural foamed layers
- 442/651 . . . Plural fabric layers
- 442/652 . . . Nonwoven fabric is coated, impregnated, or autogenously bonded
- 442/653 Including particulate material other than fiber
- 442/654 . . Including a free metal or alloy constituent
- 442/655 . . . Metal or metal-coated strand or fiber material
- 442/656 . . . Preformed metallic film or foil or sheet [film or foil or sheet had structural integrity prior to association with the nonwoven fabric]
- 442/657 . . . Vapor, chemical, or spray deposited metal layer
- 442/658 . . . Particulate free metal or alloy constituent
- 442/659 . . Including an additional nonwoven fabric
- 442/66 . . . Additional nonwoven fabric is a spun-bonded fabric
- 442/662 Needled
- 442/663 Hydroentangled
- 442/664 . . . Including a wood fiber containing layer
- 442/665 . . . Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- 442/666 . . . Mechanically interengaged by needling or impingement of fluid [e.g., gas or liquid stream, etc.]
- 442/667 Needled
- 442/668 . . . Separate nonwoven fabric layers comprise chemically different strand or fiber material
- 442/669 At least one layer of inorganic strand or fiber material and at least one layer of synthetic polymeric strand or fiber material
- 442/67 . . . Multiple nonwoven fabric layers composed of the same inorganic strand or fiber material
- 442/671 . . . Multiple nonwoven fabric layers composed of the same polymeric strand or fiber material
- 442/673 . . . Including particulate material other than fiber
- 442/674 . . Nonwoven fabric with a preformed polymeric film or sheet
- 442/675 . . . Ester condensation polymer sheet or film [e.g., polyethylene terephthalate, etc.]
- 442/676 . . . Vinyl polymer or copolymer sheet or film [e.g., polyvinyl chloride, polyvinylidene chloride, polyvinyl acetate, etc.]
- 442/677 . . . Fluorinated olefin polymer or copolymer sheet or film [e.g., TeflonR, etc.]
- 442/678 . . . Olefin polymer or copolymer sheet or film [e.g., polypropylene, polyethylene, ethylene-butylene copolymer, etc.]
- 442/679 . . . Natural or synthetic rubber sheet or film
- 442/68 . . Melt-blown nonwoven fabric
- 442/681 . . Spun-bonded nonwoven fabric
- 442/682 . . Needled nonwoven fabric
- 442/684 . . . Containing at least two chemically different strand or fiber materials
- 442/685 Containing inorganic and polymeric strand or fiber materials
- 442/686 Containing polymeric and natural strand or fiber materials
- 442/687 Containing inorganic strand or fiber material
- 442/688 Containing polymeric strand or fiber material
- 442/689 . . Hydroentangled nonwoven fabric
- 442/69 . . Autogenously bonded nonwoven fabric
- 442/691 . . . Inorganic strand or fiber material only
- 442/692 . . . Containing at least two chemically different strand or fiber materials
- 442/693 . . Including a paper layer
- 442/695 . . Including a wood containing layer
- 442/696 . . Including strand or fiber material which is stated to have specific attributes [e.g., heat or fire resistance, chemical or solvent resistance, high absorption for aqueous compositions, water solubility, heat shrinkability, etc.]
- 442/697 . . Containing at least two chemically different strand or fiber materials
- 442/698 . . . Containing polymeric and natural strand or fiber materials
- 442/699 . . Including particulate material other than strand or fiber material

Former US Class 464 Series

464/00 Rotary shafts, gudgeons, housings, and flexible couplings for rotary shafts

Former US Class 483 Series

483/00 Tool changing

- 483/10 . Process
- 483/11 . with safety means
- 483/115 . . Guard
- 483/12 . with means to regulate operation by means of replaceable information supply [e.g., templet, tape, card, etc.]
- 483/123 . . Replaceable information comprising tool location
- 483/127 . . . including determining optimum tool access path
- 483/13 . with control means energized in response to activator stimulated by condition sensor
- 483/132 . . Responsive to tool identifying information
- 483/134 . . . Identifying information on tool or tool holder
- 483/136 . . Responsive to tool
- 483/138 . . . including means to monitor and control, i.e., adaptive machining
- 483/14 . with signal or indicator
- 483/15 . with means to condition or adjust tool or tool support
- 483/16 . with means to transfer work
- 483/165 . . Plural machine tools, e.g., flexible manufacturing
- 483/17 . including machine tool or component
- 483/1702 . . Rotating work machine tool [e.g., screw machine, lathe, etc.]
- 483/1705 . . . Tool support comprises rotary spindle
- 483/1707 . . . Tool having specific mounting or work treating feature
- 483/171 Workpiece holder [e.g., chuck or chuck jaw, collet, etc.]
- 483/1712 Turning tool insert changer
- 483/1714 . . . Tool changer between tool support and matrix
- 483/1717 Plural matrices
- 483/1719 Tool support comprises turret
- 483/1721 Linearly moveable tool changer
- 483/1724 Linearly moveable tool changer

- 483/1726 . . . Direct tool exchange between tool support and matrix
- 483/1729 . . Reciprocating tool machine tool [e.g., broaching machine, shaping machine, etc.]
- 483/1731 . . . including matrix
- 483/1733 . . Rotary spindle machine tool [e.g., milling machine, boring machine, grinding machine, etc.]
- 483/1736 . . . Tool having specific mounting or work treating feature
- 483/1738 Tool head
- 483/174 Abrading wheel
- 483/1743 including means for angularly orienting tool and spindle
- 483/1745 Spindle angularly oriented to align with tool
- 483/1748 . . . Tool changer between spindle and matrix
- 483/175 Plural matrices
- 483/1752 including tool holder pivotable about axis
- 483/1755 Plural tool holders pivotable about common axis
- 483/1757 including intermediate tool changer
- 483/176 Intermediate tool changer includes tool holder pivotable about axis
- 483/1762 Tool holders pivotable with respect to each other
- 483/1764 Tool holders pivotable about plural nonparallel axes
- 483/1767 Linearly movable tool holders
- 483/1769 Extensible tool holders
- 483/1771 Translatable axis
- 483/1774 Distinct tool changer for each tool
- 483/1776 including intermediate tool changer
- 483/1779 Linearly movable tool holder
- 483/1781 Tool holder pivotable about plural nonparallel axes
- 483/1783 including linearly translatable tool changer [e.g., shuttle, ram, etc.]
- 483/1786 Plural tool holders
- 483/1788 Orthogonally translatable
- 483/179 . . . Direct tool exchange between spindle and matrix
- 483/1793 Spindle comprises tool changer
- 483/1795 Matrix indexes selected tool to transfer position
- 483/1798 including means to project tool from matrix
- 483/18 . . Tool transfer to or from matrix
- 483/1809 . . Matrix including means to latch tool
- 483/1818 . . Matrix including means to project tool for transfer
- 483/1827 . . . Rectilinear
- 483/1836 . . . Pivoting
- 483/1845 . . Plural matrices
- 483/1855 . . . including tool replenishing
- 483/1864 . . including tool pot or adapter
- 483/1873 . . Indexing matrix
- 483/1882 . . . Rotary disc
- 483/1891 . . . Chain or belt
- 483/19 . . Miscellaneous